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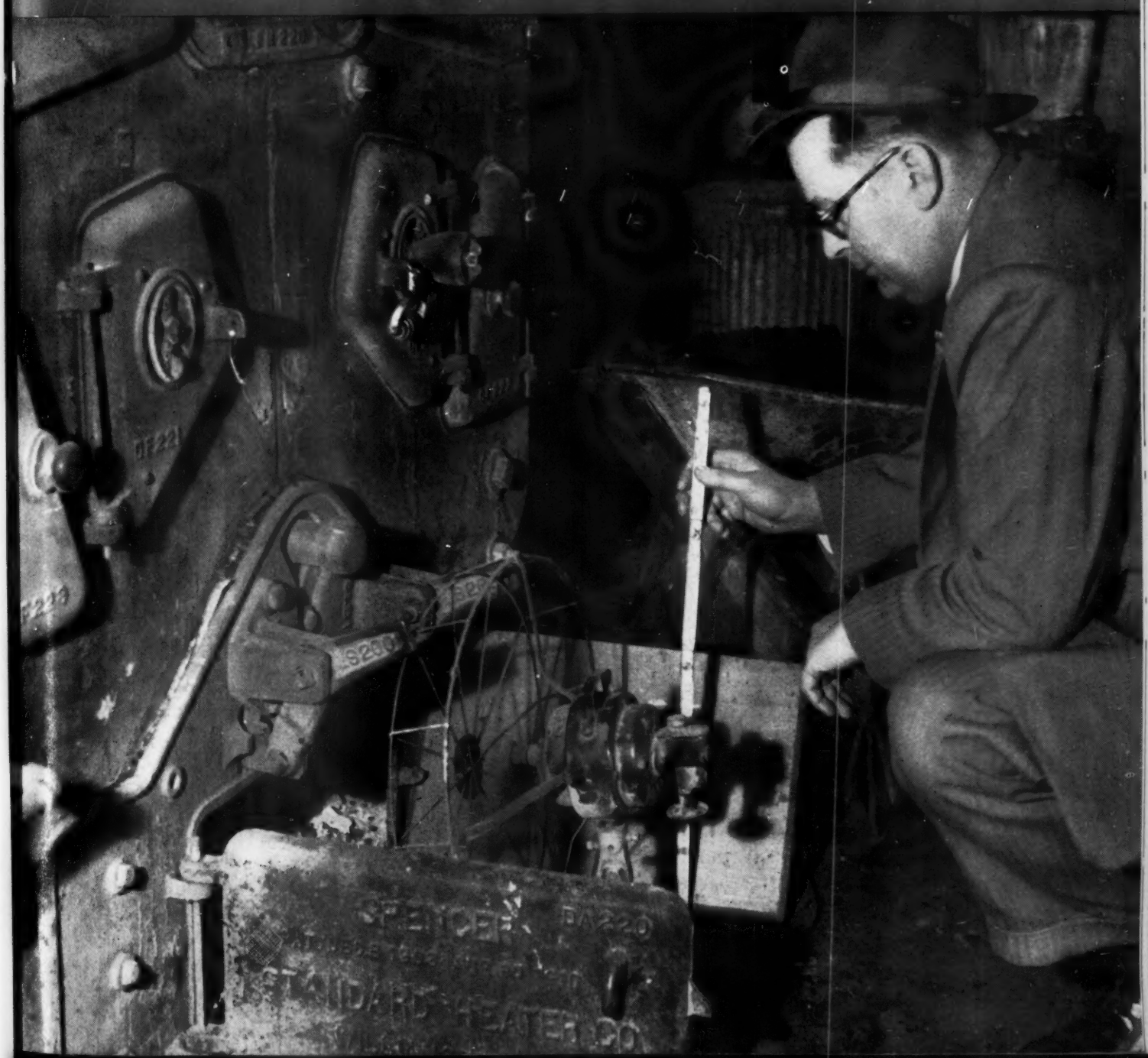
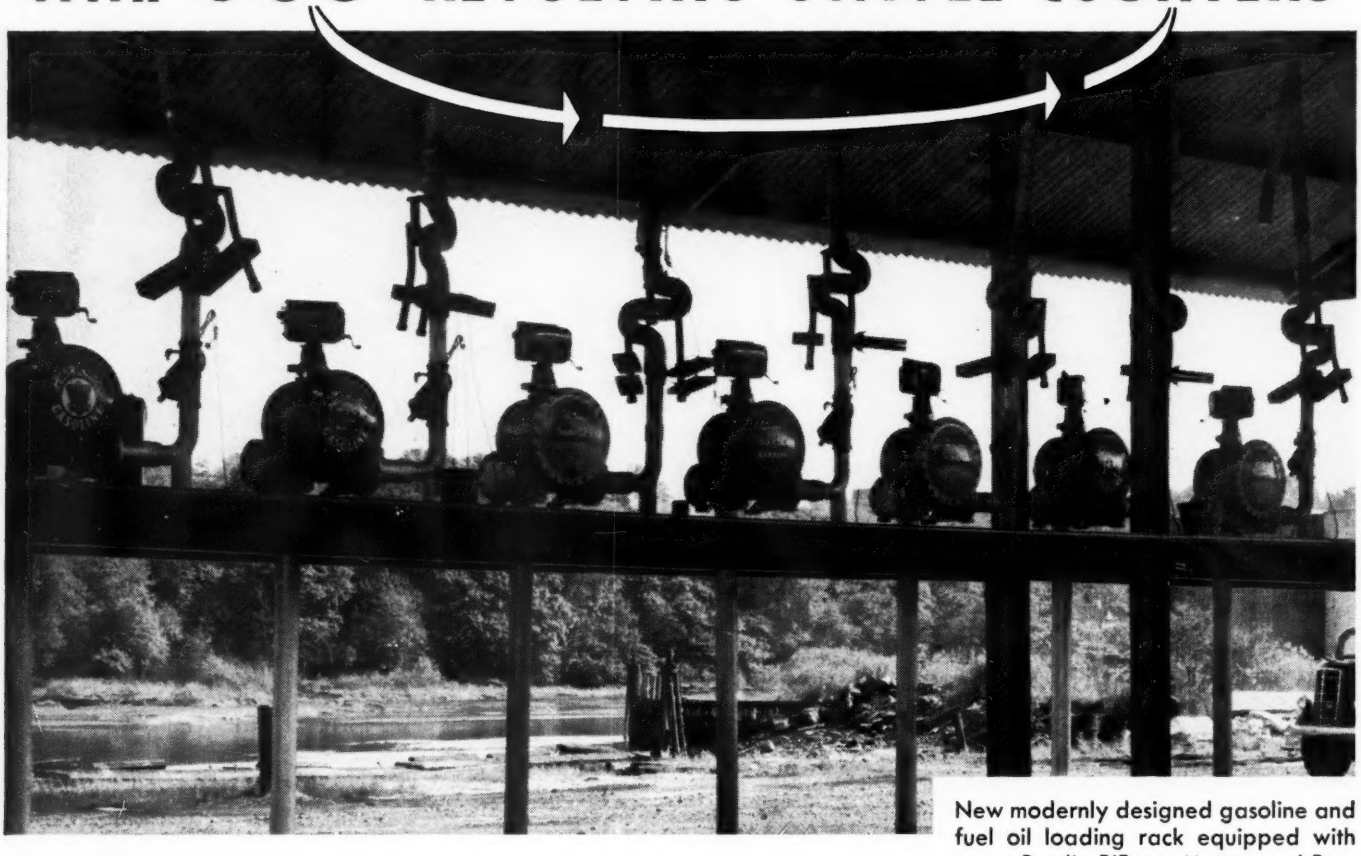


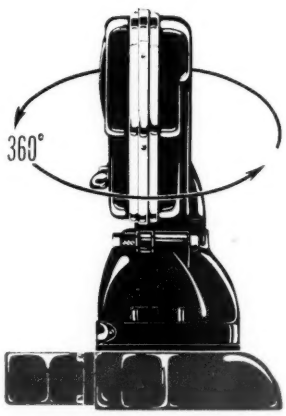
With 360° REVOLVING SWIVEL COUNTERS



New modernly designed gasoline and fuel oil loading rack equipped with seven Brodie BiRotor Meters and Brodimatic 360° Swivel base counters.

BRODIE *BiRotor* METERS SERVE BOTH SIDES OF THE RACK

Highly efficient and accurate *double-duty service* on busy loading racks is made possible by Brodie BiRotor Meters equipped with 360° swivel base counters. Permitting full visibility of counter reading from any angle on either side of the rack, Brodimatic Swivel Base Counters can be turned to face any direction while the Meter is operating—without affecting the accuracy of the meter reading. Additional features include *readily replaceable measuring unit; welded all steel housing; simple dry adjustment.* Write for full details, today.



Brodie 360° Swivel base adaptor is suitable for use with Brodimatic Distance-Spanning, Direct-Reading Counters and Printers.

ALL-STEEL BiRotor TRUE-ROTARY

BRODIE METERS

RALPH N. BRODIE CO., INC. • 61st & LOWELL STREETS, OAKLAND 8, CALIFORNIA, U.S.A.

Division Offices: 550 SO. COLUMBUS AVE., MT. VERNON, N.Y. • 59 E. VAN BUREN, CHICAGO 5, ILL. • 302 SO. PEARL STREET, DALLAS, TEXAS
221 9th AVE., N. SEATTLE 9, WASH. • 2101 S. SAN PEDRO, LOS ANGELES 11, CALIF. • *REPRESENTATIVES AND STOCKS IN ALL PRINCIPAL CITIES*

MAY fuel oil & oilheat 1951

VOLUME 10 NUMBER 5

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PUBLISHED MONTHLY

BY HEATING PUBLISHERS, INC., PUBLICATION OFFICE: 109 MARKET PLACE, BALTIMORE 2, MD. EDITORIAL AND ADVERTISING OFFICES: 232 MADISON AVE., NEW YORK 16, N. Y., SUCCESSOR TO FUELOIL JOURNAL (1922) AND AIR CONDITIONING & OIL HEAT (1928), MAY, 1951.

ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT BALTIMORE, MD.

LEOD D. BECKER, *Chairman, Board of Directors*

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Pacific Coast Representative: Don Harway
1709 West 8th St., Los Angeles 14, Cal. Phone: Dunkirk 2-8576

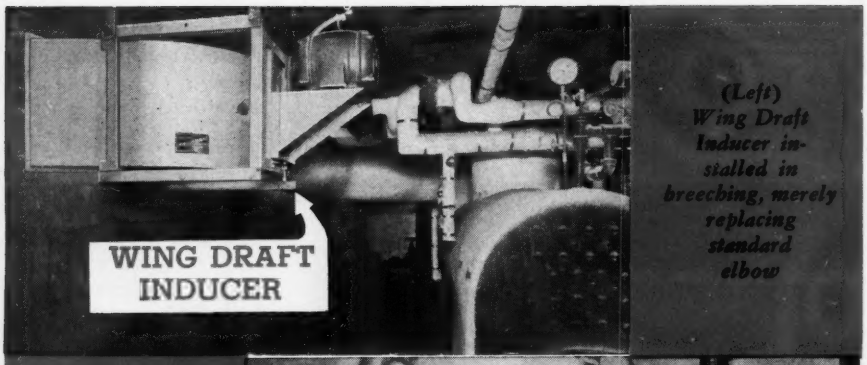
Among other things . . .

Not many companies in the heating business have been active for a hundred years. An exception is the Thatcher Furnace Co., celebrating its centenary this year. The first feature article tells of its early start and subsequent history.

The cover picture illustrates a point in the "Thumb Rule" story by John Schulz, showing a dealer sizing up the requirements of a new oilheating installation by checking grate dimensions on the old coal boiler.

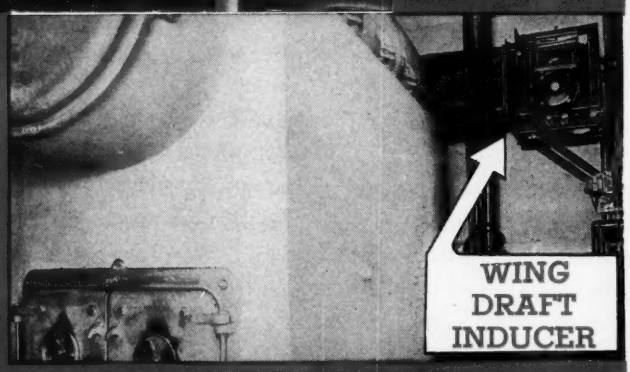
Electronic controls have been mysterious to most oilheating dealers. This issue carries the first of two articles by an engineering professor, designed to remove some of the mystery and stimulate wider interest in this important new line of products.

The API story on controlling stock losses in fueloil is given a colorful presentation to emphasize its import. Then Ragle is back with the second in his management series.

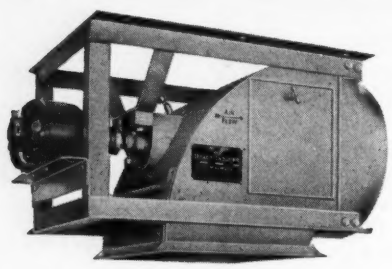


(Left) Wing Draft Inducer installed in breeching, merely replacing standard elbow

(Right) Wing Draft Inducer installed in elbow of breeching operating automatically with oil burner



How to Insure Positive Draft



Write for a copy of Bulletin on Wing Draft Inducers

The Wing Draft Inducer provides a means for furnishing positive, uniform, adequate draft for low pressure heating plants without the need for tall, unsightly, expensive stacks.

It permits operating at high efficiencies without regard to weather conditions.

Thorough and efficient combustion with high CO_2 content is assured. Smoke, gas and explosion hazards are reduced or eliminated.

L. J. Wing Mfg. Co. 66 Vreeland Mills Road, Linden, N. J.

Factories: Linden, N. J. and Montreal, Canada

Wing

DRAFT INDUCERS

Names in the News

Fred H. Angier has been named district manager for the Philadelphia and Baltimore factory branch offices, General Controls Co., Glendale, Calif. He formerly was manager of the factory branch office in Baltimore and will be succeeded there by *J. B. Crandley*, former sales engineer in the Philadelphia office. Mr. Angier, whose territory will include the District of Columbia, Maryland, Virginia, West Virginia, eastern Pennsylvania, lower New Jersey and Delaware, will work out of the Philadelphia office to direct sales and service of General's complete line of automatic pressure, temperature, level and flow controls.

Oliver Dobson and *Len Thomson* have been appointed eastern representatives for General Filters, Inc., Detroit, Mich., replacing Les Sheldon, who died recently. Mr. Dobson, who has had wide experience as an advertising and sales executive with companies in the field of oilburner controls, will cover metropolitan New York, Fairfield County in Connecticut and New Jersey. He continues as vice-president and is supervising eastern

Dobson

Thomson

Look Ahead... Plan Ahead... Stay Ahead

WITH MONCRIEF

The most complete line of Heating and Air Conditioning Units for all types of fuel . . . for any type of heating Installation
STEEL Heating Elements
CAST IRON Heating Elements

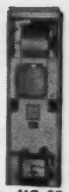
Competition ? ? ? You don't have it when you sell Moncrief—you eliminate it because you have the outstanding advantages of the tremendous demand for Moncrief.

This demand has been created by Moncrief's sensational dollar value —values that have sold the public on Moncrief.

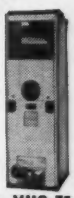
With Moncrief's complete line of heating and air conditioning units you can beat competition with:

1. Unexcelled features
2. Unexcelled quality
3. Unexcelled economy
4. Unquestioned acceptance

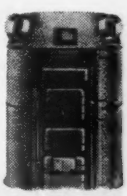
So why not — Look Ahead — Plan Ahead and Stay Ahead with Moncrief. Your Moncrief jobber will be happy to plan a Moncrief-future with you.



No. UC-95-E Gas Counterflow Unit, for Floor Slab, Perimeter Heating.

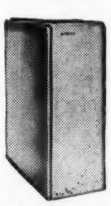


No. VUC-75-E Oil Counterflow Unit, for Floor Slab Perimeter Heating.

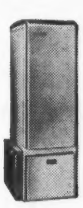


Series No. 600 Coal-Fired Gravity Furnace. Steel Heating Element.

Series C Coal-Fired, Cast Iron, Gravity Furnace.



Series L Gas-Fired Steel Air Conditioning Unit.

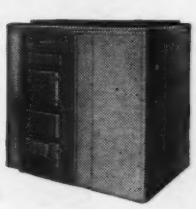


Series U Gas-Fired Steel Utility Air Conditioning Unit.

Series W Gas-Fired Gravity Furnace Available with Steel or Cast Iron heating element.

No. CL-200 Gas Fired Air Conditioning Unit with cast iron Heating Element.

Series P Gun, Oil-Fired Air Conditioning Unit, Steel heating element.



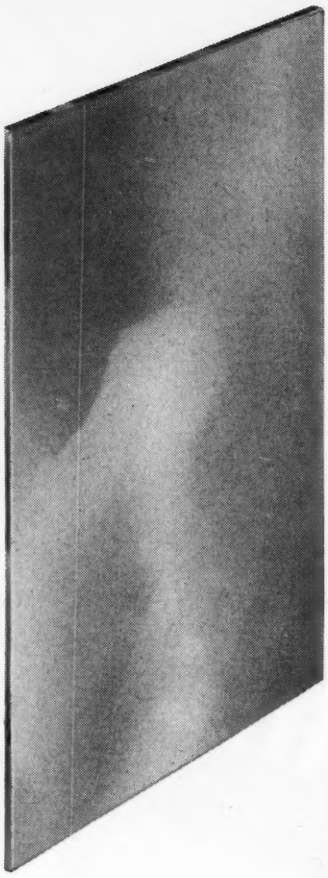
Series AC-F Coal-Fired, Steel Air-Conditioning Unit.

THE HENRY FURNACE COMPANY • *Medina, Ohio*

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

fuelfoil oilheat

Sheared to Size for Your COMBUSTION CHAMBERS!



Have your Engineering Department check your percentage of scrap saving!

We are specialists in producing heat-resistant stainless steels for combustion chambers. Whether you are a large or small user of these steels our steel-making facilities can offer exceptional service by especially shearing to your specified combustion chamber steel blanks, or multiples thereof.

Ingersoll

HEAT-RESISTANT STAINLESS STEELS

Give your combustion chambers all four operating advantages

1. MORE QUIET BURNER OPERATION
2. CLEANER HEAT
3. BETTER TEMPERATURE CONTROL
4. CONSIDERABLE SAVINGS ON FUEL COSTS

Write for additional information

Ingersoll STEEL DIVISION
BORG-WARNER CORPORATION
310 South Michigan Avenue • Chicago 4, Illinois
Plant: New Castle, Indiana

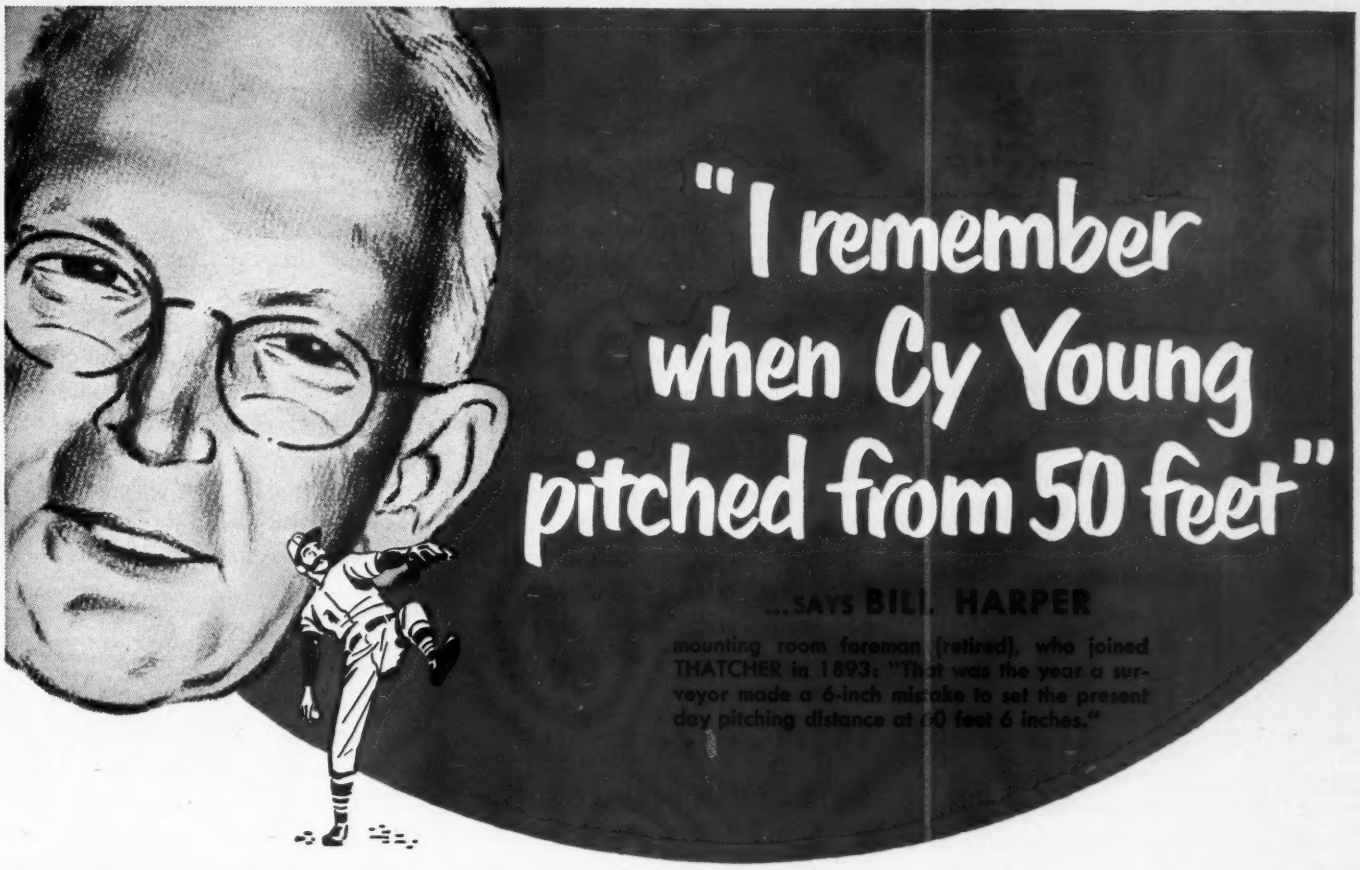
ENGINEERING B-W PRODUCTION

sales for Automatic Devices, Inc., manufacturers of Weather Man outdoor type controls. Mr. Thomson has been active in promoting General filters in the marine field and now will be responsible for the complete line in Delaware, Maryland, Virginia, West Virginia, District of Columbia, North and South Carolina.

Harry E. Milton, president, Milton Oil Co., St. Louis, Mo., has been elected chairman of the Missouri-Iowa-Nebraska district of the Oil Industry Information Committee, succeeding L. C. Pfaff, Socony-Vacuum Oil Co., St. Louis. Mr. Milton, who will serve as a member of the national committee of this industry-wide program, has announced the selection of *M. F. Ousley,* Omaha, Phillips Petroleum Co., to serve as Nebraska state chairman. The following district vice-chairmen also have been named: *Harold F. Nelson,* Kansas City, Sinclair Refining Co.; *J. M. Hammer,* Standard Oil Co. (Ind.) and *Dan A. Breen,* Kansas City, Skelly Oil Co.

J. D. O'Brien has become sales manager, Jefferson Electric Co., Bellwood, Ill., supervising sales of fuses, transformers and the "Golden Hour" clock. He has been associated with the electrical industry for many years in administrative and sales capacities, plans to continue Jefferson's merchandising policies and is preparing a program for further diversification of several of its lines.

Dudley B. Robinson has assumed the position of general sales manager, Torrington Mfg. Co., Torrington, Conn., succeeding Donald G. Leslie, resigned. Mr. Robinson joined Torrington in May 1949 as assistant general sales manager, after extensive experience with the Warren McArthur Corp., Bantam, Conn. There he was in close touch with the aircraft industry, and during the war he organized and directed the company's purchasing and material control departments.



"I remember when Cy Young pitched from 50 feet"

...SAYS BILL HARPER

mounting room foreman (retired), who joined THATCHER in 1893: "That was the year a surveyor made a 6-inch mistake to set the present day pitching distance at 60 feet 6 inches."

"and after 58 years I can still pick a winner...the Thatcher Automatic Comfortmaster Winter Air Conditioner."

"The Comfortmaster is a perfect result of over 100 years of continuous manufacturing teamwork. I ought to know. My father was at Thatcher before me, and my son is carrying on. We've always had young men to *engineer new ideas* and a solid group of Thatcher old-timers with the *years of production know-how.*"

A COMPLETE WARM AIR HEATING LINE FOR OIL • GAS • COAL

Illustrated is the oil-fired V Series Comfortmaster available in 2 capacities: 90,000 B.T.U. at reg., 140,000 B.T.U. at reg.

The Oldest Name in Heating

Thatcher
FURNACE COMPANY
Specialists in Heating Since 1850

Specialists in Heating since 1850

GARWOOD, NEW JERSEY

Editorial Leaks

FUELOIL DISTRIBUTORS would probably be well advised to fill their storage early in the summer and keep it filled. Almost every year the same suggestion is made . . . sometimes it is more important than in other years. This is one of those times.

We keep building demand for heating oil at a rate faster than that of any other principal petroleum product. It's good that we do because the American public wants it that way.

Each year as the number of burners grows more fueloil has to be made in advance of the heating season and stored in the summer months. The major suppliers had planned to build 80 million barrels more storage this year, but it now looks like only about 40 million can be built. The difficulty is in getting the steel.

There is enough storage capacity around the country to get us by without serious trouble if it is all put to work. This includes the 25 million barrels capacity of the fueloil distributors' local bulk tanks.

Some distributors are hesitating to fill because it costs money to carry more oil in inventory than actually needed for immediate sales . . . costs more for bank interest and insurance.

But, even with frozen prices at the moment, there is still a good chance for a price rise. Fueloil at the Gulf is selling at 3½¢ under gasoline, much too wide a spread to make fueloil attractive to small refiners. There is reason to expect some adjustment.

❖

THE CONTROLLED MATERIALS PLAN, which goes into effect July 1 to regulate the quantities of steel, copper and aluminum for civilian products, will not be too rough on oilheating.

While everything is still in the formative stage and subject to a lot of refinement, oilburners are now listed in the Class B group. This means that they are essential to the country's general welfare. List A covers primarily defense or defense-supporting materials.

Only about 40% of all supplies of the three basic materials will be controlled. The remaining 60% will be left open to be fought for in the market. Oilburners are in the controlled segment, which means that they will get definite allotments. However, the basis of their allotments to individual companies has not been established.

Such important products as passenger automobiles and household appliances are not on the lists, so they must get their materials when and where they find them.

❖

THE OILHEATING INDUSTRY in New York City has been getting some unfavorable publicity. In the general political shake-up of the past several months a lot of cash contributions of one sort or another have been coming to light.

Among other city offices, the investigators have been looking into the fire department and its large source of revenue from permit inspections.

One metropolitan newspaper has it that graft in the permit department runs to a quarter million dollars a year. It mentioned oilburner permit inspections as one of the primary sources.

It seems that the inspectors collected gratuities on a fixed scale from dealers to approve their jobs. According to the newspaper, the dealer paid double if he was not licensed as an installer.

It has been an open secret for 15 years that gratuities were being paid. Some provisions in the fire department regulations were impractical to the point where the gratuity was the only way out for some dealers.

Perhaps out of the present investigation we may get some long sought reforms. The New York Oil Heating Assn. will recommend a provision that where dealers are licensed and bonded to the city their jobs can be put into operation right away, and then let the inspector see them at his convenience, perhaps weeks in the future.

That would eliminate the provision that all oil tanks must be pressure tested in the presence of the inspector before oil could be stored in them . . . an occasion for unlimited delays before the new burner owner could use it to heat his home. Then there is the provision that even low voltage thermostat wires must run in rigid conduits. Again, 275 gallon tanks must be 10-gauge steel, while the rest of the country feels safe with 12-gauge and in some spots even 14-gauge tanks are accepted.

A lot of good for the oilheating public could result from a thorough housecleaning in the country's largest single market.

❖

THE FLORIDA POWER and Light Co. continues its advertising campaign to popularize oilheating. It does not sell any oilburning equipment. You might think then that it wants to sell the small amount of current consumed by oilburner motors and transformers. That isn't the reason for its promotion.

The fact is that it wants to get rid of some electric customers. With a mild climate, too many families put in electric heaters or heating systems.

When the state gets its occasional cold snaps all of these heating units come on at once. This might occur only 5 or 10 times in a winter season, but it is a heavy load. The line voltage drops all over the state, complaints by the thousands pour in from every other type of current user. Industries are crippled and people thrown out of work when motors cut out on their low voltage controls.

So the electric utility is spending considerable funds to promote a competitive fuel . . . you can have her, I don't want her, she's too tough for me.

❖

ART WINKLER, advertising manager of FUELOIL & OIL HEAT, missed the sessions of the OHI convention and exposition at Chicago due to an ulcer attack on the first day. After being on the shelf two weeks at the Palmer House and in a local hospital, he is now convalescing at his home, 1528 N. E. 25th Ave., Ft. Lauderdale, Fla., and expects to be back in New York at the end of May.

.....right in Fuel Oil Customers' Homes!

Every fuel oil tank **not** equipped with VENTALARM Signal is a salesman for gas heat: And there are still some 2,000,000 home fuel oil tanks in this category. Can the industry afford such a weakness within its own ranks?

CLEANLINESS and CONVENIENCE head the answer list again and again when home owners are surveyed for preferences in home heating systems.

VENTALARM Whistling Tank Fill Signal is the automatic provision for **cleanliness and convenience** in the fuel oil delivery field. No spills; safe, accurate fills . . . no invasion of home privacy. The driver "just fills 'til the whistle stops."

You can help turn 2,000,000 gas heat salesmen into ambassadors of goodwill for your own industry. To do so requires only one thing: **your decision** to equip old and new accounts with VENTALARM Signal. You can't lose.

Your customer benefits. Your industry benefits. And you save 15% to 30% on your present delivery costs. Act now!

Models for all vent sizes,
new and old tanks. Easy to install.
See your regular Supply House or write to . . .

SCULLY SIGNAL COMPANY
76 First St., Cambridge 41, Mass.

VENTALARM®
WHISTLING TANK FILL SIGNAL

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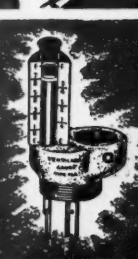
FULLY PROTECTED BY U.S. AND FOREIGN PATENTS

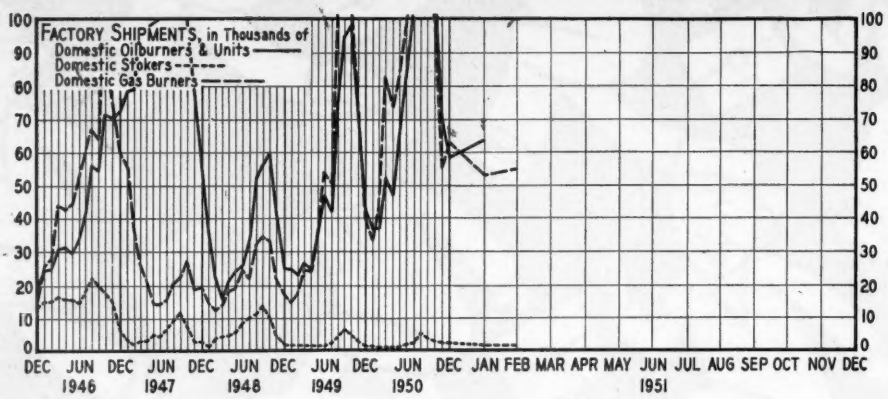
VENTALARM®
SIGNAL



VENTALARM®
GAUGE

FASFILL®
CONNECTOR

REMOTAMATIC®
CONTROL

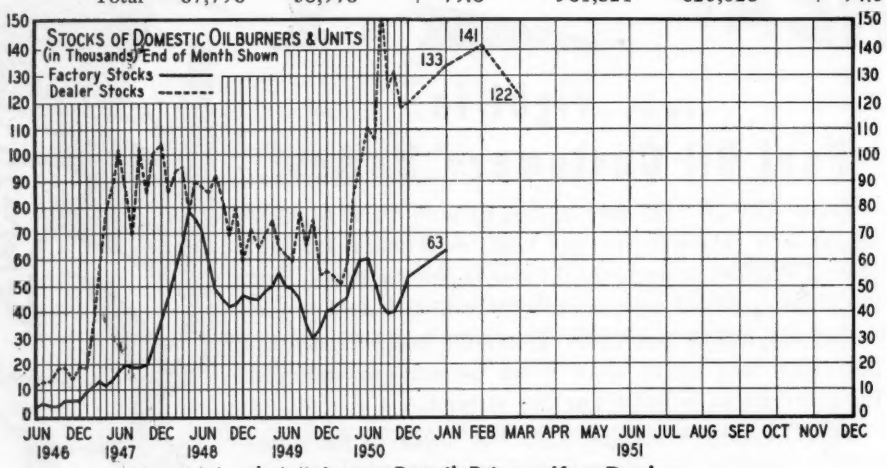

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1946 1947 1948 1949 1950 1951

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	JANUARY			TWELVE MONTHS		
	1951	*1950*	*Percent Change*	*1950*	*1949*	*Percent Change*
Conversion	44,660	26,628	+ 67.7	664,053	445,966	+ 48.9
Boiler units	6,294	3,771	+ 66.9	90,140	54,652	+ 64.9
Furnace units	12,886	6,481	+ 98.8	171,074	96,674	+ 76.9
All Domestic	63,840	36,880	+ 73.1	925,267	597,292	+ 54.9
Commercial	3,916	1,698	+130.6	36,554	25,736	+ 42.0
Total	67,756	38,578	+ 75.6	961,821	623,028	+ 54.3


STOCKS OF DOMESTIC OILBURNERS & UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
141
133
122
63
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1946 1947 1948 1949 1950 1951

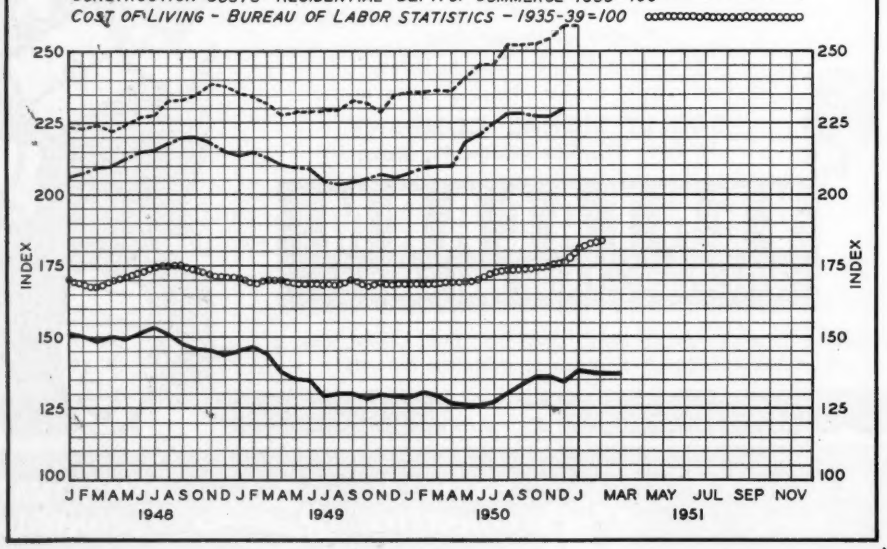
March Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
March Aver.	$332	$677	$621
February Aver.	327	683	608

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE			RETAIL		
March	137.0	Six months ago	127.8	137.1	Six months ago	133.3
February	141.5	Year ago	120.9	136.8	Year ago	128.9

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT. OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
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Oilheating Trends

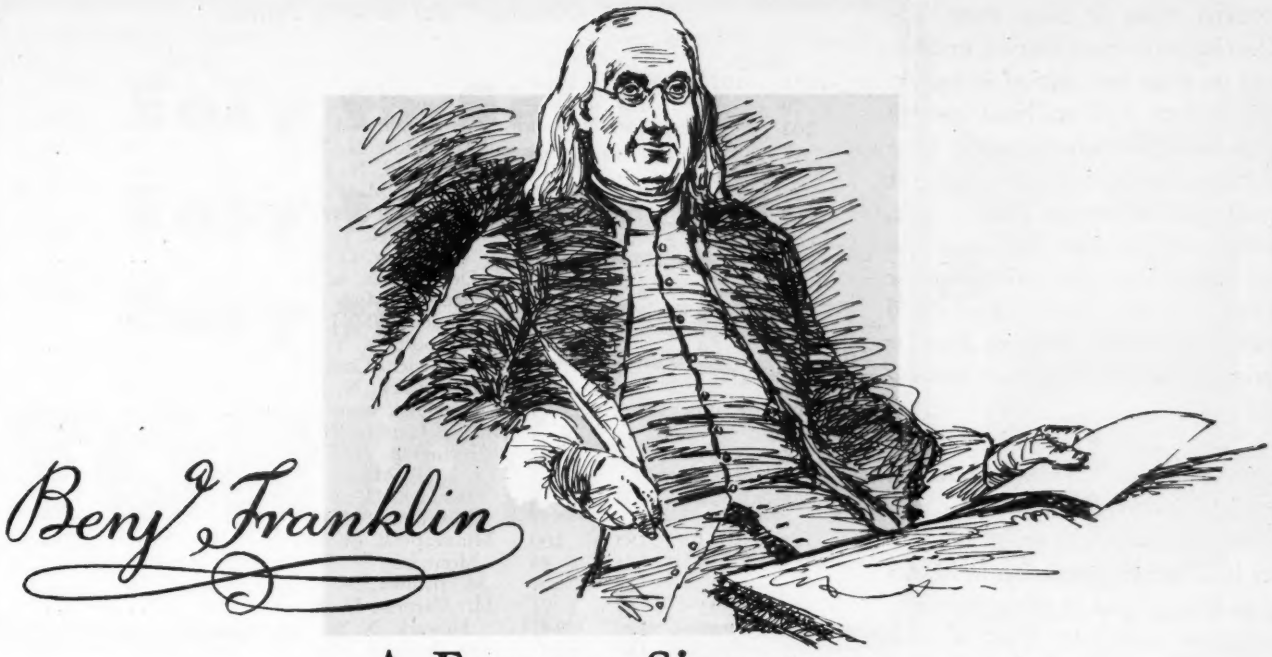
MARCH SHOWED a drop in oilheating installations, being both below February 1951 and below March of the previous year. Estimated installations of domestic oilburners and units during the month were 26,266 compared with 34,002 in February and with 29,539 in March 1950.

The March installations were divided: New homes 8,459; Replacements of old oilburners 5,238; Conversions from other fuels 12,569. The reasons for the March drop are not too clear since the dealers were not asked their specific opinions on this. Apparently it was due to general public uncertainty in the transition period from the civilian to the defense mobilization economy, plus lack of selling.

Total installations for the first three months of this year are estimated at 100,239 against 87,893, for a rise of about 14%.

BURNER STOCKS: On April 1 dealers had in their warehouses approximately 122,105 domestic oilburners and units. This is a considerable drop from the 140,709 on March 1. This would indicate that most of the March installations were made from stocks already in dealer hands and that factory shipments were light. However, it is not safe to take this as an absolute conclusion since it is not always possible to eliminate all of the variables in a single month. Conversations with several burner manufacturers did show that March was off to some degree with most of them. Factory stocks on January 31, the latest available data, were 63,325.

TANK STOCKS: Stocks of customer tanks in the hands of oilheating dealers on April 1 were approximately 143,013, a sharp rise from 122,693 at the first of March. Dealers are still inclined to build tank inventories principally because they are afraid of a tight situation in steel sheets later in the year. The April 1 stocks were divided by sizes as follows: 220-275 gallon 126,860; 550-675 gallon 11,987; 1,000 and larger 4,166. The average price during March for a 275 gallon tank was $46 which establishes an all time high figure.



A Famous Signature That Stood for Leadership and Integrity

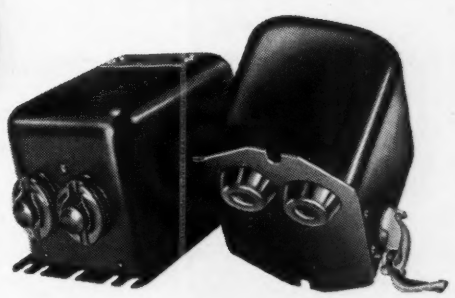
Benjamin Franklin, 1706-1790, philosopher, statesman and man of letters, founder of the "Pennsylvania Gazette", author of "Poor Richard's Almanac", and adroit diplomat devoted much of his life to America. On July 4, 1776, Franklin signed the Declaration of Independence, and today his signature is an American symbol of leadership and integrity.

ON TRANSFORMERS THE FAMOUS SIGNATURE IS *Jefferson*

JEFFERSON ELECTRIC

● The founders of Jefferson recognized, over a quarter century ago, that a fabricator with specialized engineering skills in research, experimentation and manufacturing methods was needed in the "small" transformer field.

Since that time Jefferson has continually pioneered in the application and development of automatic electric ignition for oil burners. The patented Mid-Point Ground design was instrumental in securing approval of Underwriters' Laboratories for electric ignition. Another Jefferson contribution was the patented radio interference barrier which made possible the elimination of the condenser with its limited life span.



Today, therefore, the signature "Jefferson" on oil burner ignition transformers is widely known and respected as a symbol of leadership and integrity. The high degree of engineering and production skills built into every Jefferson Transformer provide superior oil burner performance. Experience has shown that the "Quality with Quantity" tradition of Jefferson is your assurance of economical, reliable, adequate ignition spark.

JEFFERSON ELECTRIC COMPANY Bellwood, Illinois

In Canada: *Canadian Jefferson Electric Co., Ltd., 384 Pape Ave., Toronto, Ont.*

COPPER TUBE & IRON PIPE: The dealers have also been keeping up their stocks on these two critical items. On April 1 they had on hand enough copper tubing for approximately 133,502 future installations, or enough for several months at the present rate. Another critical item has been the large sizes of iron pipe and fittings for fill and vent lines. They had on April 1 enough of these larger pipe sizes for approximately 134,996 future installations.

While all dealers recognize impending shortages on various installation materials, these are definitely not serious up till now. Only about 590 jobs were held up on completion in March due to lack of one or more necessary installation materials. This is only about 2% of the installations planned during the month.

FUELOIL STOCKS: Stocks of No. 2-3 heating oils in the hands of local fueloil distributors on April 1 were approximately 7,656,106 barrels or 31% of the capacity of the bulk storage tanks of these companies. A year ago, or April 1, 1950, the corresponding stocks were approximately 6,463,770 barrels, equal to 27.4% of the storage capacity at that time. Stocks in the New England and Mid-Atlantic areas are considerably lower now than they were a year ago but Midwest stocks are more than enough higher to offset the Eastern drop. The figures shown for the Southern states are the least accurate among the various regions since the returns from that area are relatively few in number and probably not representative. However, those figures constitute a very small fraction of the total East of the Rockies, so the overall figure and the figures for the more important regions are probably about right. The total of local stocks East of the Rockies this year is about 18% above a year ago while the number of oilburners in operation is up about 15%.

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
March		3 MONTHS			March		3 MONTHS	
1951	1950	1951	1950		1951	1950	1951	1950
79	72	177	145	Albany, N. Y.	..	..	..	..
203	389	766	1144	Baltimore, Md.	472	714	1323	1772
..	..	..	..	Binghamton, N. Y.	7	6	12	9
..	..	..	..	Bloomfield, N. J.	10	11	15	19
..	233	..	868	Boston, Mass.	30	19	59	62
67	43	250	161	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	61	63	142	172
..	1	..	8	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	41	185	178	249
230	88	..	291	Detroit, Mich.	860	1816	2037	4041
25	19	96	83	Elizabeth, N. J.	6	6	24	18
26	26	98	90	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	..	41	..	85
..	..	..	..	Hackensack, N. J.	3	7	8	64
207	199	692	503	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
25	35	50	65	Irvington, N. J.	7	1	10	4
..	..	..	..	Lynn, Mass.	11	4	29	24
31	38	133	128	Meriden, Conn.	..	..	..	..
..	206	..	557	Milwaukee, Wisc.	171	287	439	614
55	54	185	200	Minneapolis, Minn.	75	127	218	212
11	19	46	44	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	..	0	..	6
12	31	53	71	Mt. Vernon, N. Y.	..	..	..	..
109	119	285	247	Newark, N. J.	..	..	..	..
83	82	184	347	New Bedford, Mass.	..	..	..	..
37	33	132	84	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
45	21	114	64	New Rochelle, N. Y.	6	10	37	19
..	1632	..	5321	New York City (total)	..	..	..	..
..	1300	..	3955	Brooklyn-Queens	..	..	..	..
..	332	..	1366	Manhattan, Bronx, Rchd	..	..	..	..
150	71	385	182	Norfolk, Va.	62	142	234	343
..	..	..	..	Oakland, Calif.	..	..	..	..
62	38	170	153	Omaha, Nebr.	73	141	158	186
7	11	30	23	Orange, N. J.	0	1	18	1
11	26	32	40	Passaic, N. J.	..	..	..	..
43	52	92	105	Paterson, N. J.	18	14	42	33
518	618	2109	1389	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	4	12	48	32
31	46	145	85	Portland, Me.	20	14	24	24
316	422	819	1055	Portland, Oreg.	149	236	437	461
11	17	36	35	Poughkeepsie, N. Y.	..	..	..	..
55	56	208	157	Providence, R. I.	29	37	66	67
..	..	..	..	Reading, Pa.	9	5	26	17
56	113	271	243	Richmond, Va.	156	66	248	183
38	117	114	275	Roanoke, Va.	..	..	..	..
158	250	411	435	Rochester, N. Y.	..	..	..	..
22	33	67	69	Rockville Center, N. Y.	6	11	26	32
19	25	73	67	Salem, Mass.	6	8	13	14
..	49	..	163	St. Louis, Mo.	54	132	139	219
46	50	205	272	St. Paul, Minn.	102	116	192	182
81	68	212	192	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	..	333	..	596
..	..	..	..	Springfield, Mass.	70	86	125	145
78	145	212	296	Stamford, Conn.	..	..	..	..
..	10	..	37	Syracuse, N. Y.	35	25	63	73
..	..	..	..	Trenton, N. J.	8	17	14	20
..	..	..	..	Utica, N. Y.	21	6	32	9
91	203	275	396	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	13	33	63	61
10	13	54	37	White Plains, N. Y.	20	8	33	25
60	68	202	168	Wilmington, Dela.	72	34	102	64
129	120	375	293	Worcester, Mass.	..	..	..	..
39	42	115	100	Yonkers, N. Y.	..	..	..	..
3276	3872	9873	9443	*Totals*	2687	4399	6634	9470
—15.4		+4.5		*Percent Change*	—38.9		—29.9	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, they are a useful working index.

Local Fueloil Distributors Stocks No. 2-3 oil, April 1

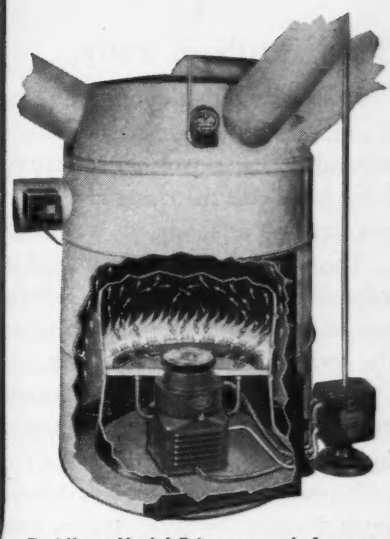
	April 1, 1951	% *of cap.*	*April 1, 1950*	% *of cap.*
New Eng.	994,987 bbls.	30.7%	1,468,886 bbls.	45.5%
Mid. Atl.	3,042,001	23.6	2,998,929	24.6
Midwest	3,328,871	46.4	1,901,995	27.6
South	290,347	20.5	93,960	7.0
E. of Rockies	7,656,106	31.0	6,463,770	27.4

Stocks of No. 2-3 fueloil at refineries, terminals and in transit East of the Rockies on April 7 were 33,542,000 barrels compared with 29,983,000 barrels on the corresponding date a year ago. There was a slight rise on the East Coast, a small drop at the

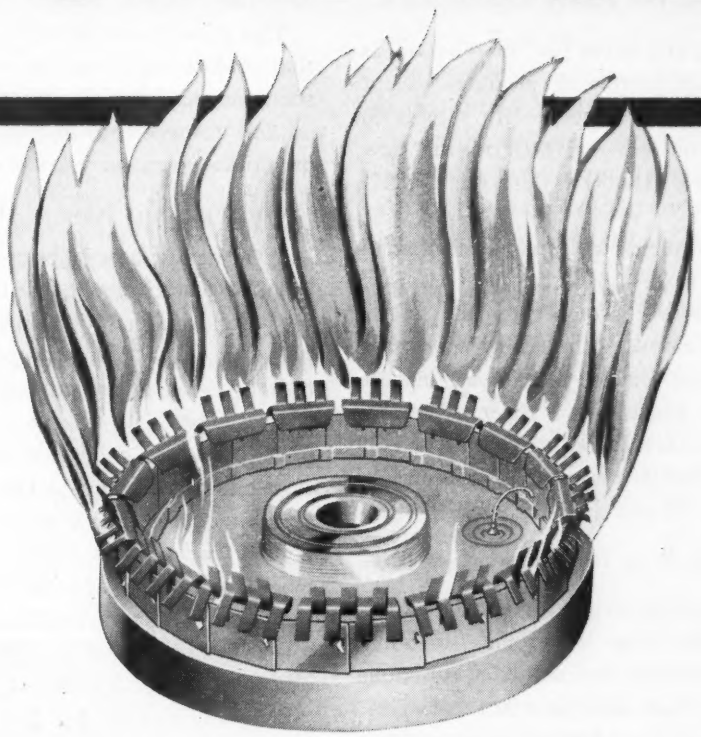
(*Please turn to page* 142)

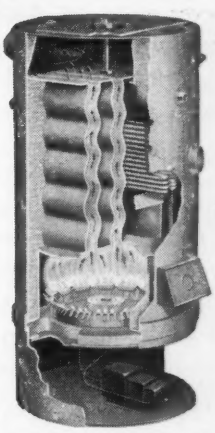
Easy to Sell!
Easy to Install!
Easy to Service!

TORIDHEET

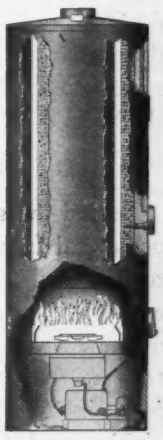


Toridheet Model F in warm air furnace





Toridheet Model ORU rotary fired boiler



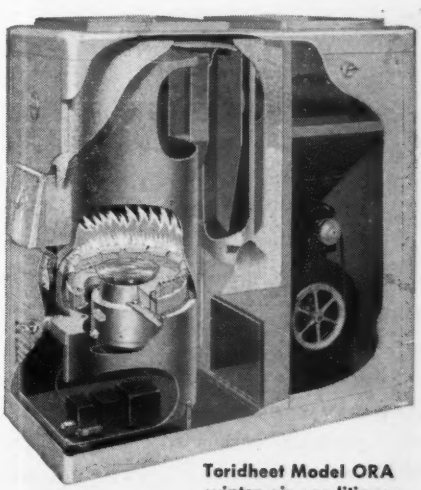
Toridheet Model ORM rotary fired water heater

The Pioneer rotary wall flame oil burner

The customer-proved economy of TORIDHEET rotary wall flame equipment makes it your best bet for sales and satisfaction. TORIDHEET equipment sells easily and *stays sold.*

- **Economical— saves up to 50% on oil**
- **Burns catalytic oil efficiently**
- **Quiet and clean**
- **Correct flame placement**
- **Fully automatic**
- **Trouble-free— one moving part**
- **Backed by 27 years of research and development**

... For conversion jobs and in complete heating plants



Toridheet Model ORA winter air conditioner

Other Toridheet units for every need... every budget... Gun Burners... Gun Fired Boilers and Furnaces... Gas Conversion Burners and Gas Fired Furnaces

CLEVELAND Toridheet AUTOMATIC HEATING

TORIDHEET DIVISION
CLEVELAND STEEL PRODUCTS CORPORATION
7306 Madison Avenue Cleveland 2, Ohio

Affiliated Canadian Manufacturers: Conroy Mfg. Company, Ltd., Catherine St., St. Catherines, Ont.

Government Influences on Fuels

by
Milburn Petty

WASHINGTON—It's going to require a continual battle to get materials for expanding the petroleum industry to keep pace with the rising civilian and mobilization demands.

The materials budget for oil and gas, submitted by the Petroleum Administration for Defense, has flabbergasted the agencies doling out materials.

They must be educated on the enormous size and constant growth of the industry even in normal times.

Eventually, PAD will win out—because it must. Nothing is more essential than petroleum. Realizing this, PAD officials never give up—until they get what they want. It was the same with PAW during World War II. And PAW finally won.

PAD Fights for Materials

Behind the scenes, PAD is fighting on several fronts in the war over materials. Coal is sniping at oil and gas expansion. Other industries are envious of the amount of steel going into petroleum. Congressional pressure is being applied to prevent cutbacks in civilian production.

The argument is made that expansion in key industries must be slowed let it upset the civilian economy.

Gas Transmission Hit Hardest

Biggest bottleneck still is line pipe for long-distance transportation of oil and gas. Line pipe production is less than half the World War II peak rate.

Oil, with several alternative methods of reaching consuming centers, is less vulnerable than gas in the tie-up of pipeline construction.

Gas lines need 740,000 tons of pipe during the third quarter—but they may get only half of this, says PAD. If so, many consumers counting on gas next winter will be disappointed.

Refinery Expansion Urged

Refining is the oil program most often mentioned when the other agencies start talking about "over-expansion" plans.

PAD denies this, insisting that the program is the "minimum" required to meet refining needs which are immediately foreseeable.

Laying it on the line, PAD has warned other agencies that oil rationing may be necessary—even without a major war—if refining capacity is not expanded by at least 700,000 barrels daily before the end of 1952. Expansion should be a million barrels by the end of 1953; 1,600,000 by 1956.

Steel for 43,400 oil wells this year has been programmed. (PAD moved in fast to get an OK on this.)

Fuel Oil Prices Controlled

Light and heavy fuel oils—as well as all other petroleum products except lube oils and asphalt—are subject to price controls set forth in the new wholesale (bulk) sales order, OPS CPR 17.

All types of delivery, and all sales levels (except service stations), are covered. With the "reference seller" provision deleted because Department of Justice objected that it was "market leader" pricing, each seller has to determine his own ceiling price, based on the highest prices charged between December 19 and January 25.

Opens Way for Higher Margins

Unlike the service station regulation, this order does not provide for automatic margin increases to a minimum level. It does allow distributors to petition for price adjustments when their price ceilings are out of line.

Office of Price Stabilization hopes to spell out dollars-and-cents ceilings in each area. Margin adjustments could be taken care of in this way. One of the first to get attention is Boston.

Fuels Policy Hearings Planned

Senate Interior Committee still plans to hold formal hearings this spring on the need for a national fuels policy, bearing down on the "adequacy" of oil and gas reserves, particularly.

But before that, Senator O'Mahoney of Wyoming, the chairman, may have the committee look into the Middle East oil situation.

If the Iranian oil troubles should result in closing down the Abadan refinery on the Persian Gulf—the world's largest, 550,000 barrels daily — it would cut off one of Europe's main sources of supply.

It would mean that about 200,000 B/D of gasoline and distillates would have to be supplied from the United States, officials say. This would put a crimp in our supply here.

Oil-Gas Reserves Studied

The report on oil and gas reserves by United States Geological Survey was not much help to the coal people who had charged that petroleum reserves are insufficient to met all the demands in prospect, hence oil and gas ought to be under "end use" control.

This government agency's report to the O'Mahoney committee said: "If the future can be judged by the past, oil and gas will be found in sufficient quantities for many years to come."

Store Fuel Oil Now, PAD Urges

If the next winter is abnormally cold there isn't much doubt that the Industry will have difficulties with oil transportation, says PAD, urging that every barrel possible be moved to consuming centers now.

A total of 58 million barrels of oil storage was constructed last year. In the first quarter this year, another 14 million barrels was added, with 26 more due by the year's end. Orders on the books of tank construction firms total 80 million barrels—but there is not enough steel for half of that.

Propane may be sent via pipelines to relieve LPG shortage next winter.

Synthetic Fuel Plants Talked

It seems quite likely that Interior Department will soon persuade one or another of several groups to undertake the building of a synthetic fuels plant with government help.

One major oil company has long been interested in making synthetic fuels — gasoline, distillate fuels and residual fuels—from oil shale. Now, this company may be joined by two other major oil companies in the building of a shale oil project, Interior officials have heard. They would do their own financing but expect the government to buy the output of the plant.

Meanwhile, an eastern financial group, with oil connections, is talking about building an oil-from-coal plant.

A Century in Heating

Thatcher, the furnace Maker, got going well before the Civil War

NO RESIDENTIAL or business building today, however perfect in every other way, could possibly be offered for use without modern heating. The comfort and convenience of a complete heating system are expected in modern homes, apartment and office buildings—and so often taken far too much for granted.

It was quite a different story more than a hundred years ago. In those days fireplaces generally provided heat for the average home. Some of the wealthier people had "Franklin Stoves," simply an extension of the fireplace, while others employed a parlor stove or "space heater." Very few actually enjoyed the luxury of bricked-up enclosures in the cellar which contained stoves and sent heat up to the rooms above by means of pipes.

It was in these pioneer heating days that a young Pennsylvania school teacher, John M. Thatcher, began to think of means of improving house heating. After considerable experimenting he became so interested, and placed so much conviction in his new heating principles that he left the teaching profession to move to Troy, New York, then the center of the stove industry. Here he began work with a hot blast principle applied to a stove, and in 1850 obtained a patent on his "Tubular Furnace."

It is interesting to note the wording of this patent because it shows clearly that this was the first real step in modern principles of heating. It reads, "for a house heating, warm air furnace with air passages or tubes through the body in connection with a conical shaped plate into which the tubes are set. By means of these tubes a large increase of heating surface is obtained, as cold air has to pass through these tubes as well as over the outside surface, thus producing the greatest amount of heat with minimum fuel consumption. Besides giving a healthful and quicker heat instead of dry, burned air, as the heat from the fuel first passes around the air tubes before reaching the flue."

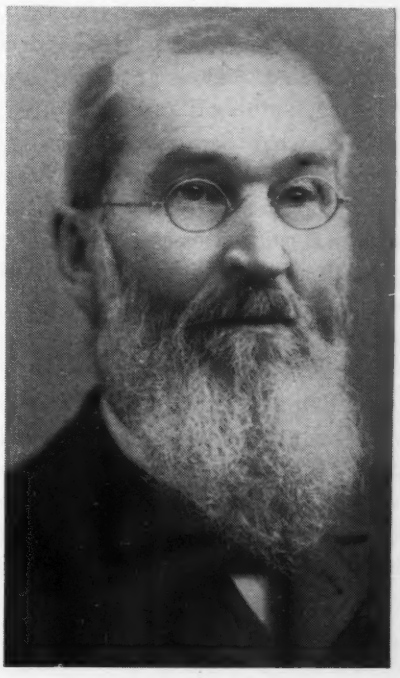
Mr. Thatcher's "Tubular Furnace" attracted much interest and soon received wide recognition. Charles D. Hoswell in his "Reminiscences of an Octogenarian" says, "Up to that time the homes of rich New Yorkers were less comfortable, as regards to heat, than a modern stable." By this time the name Thatcher had become synonymous with fine heating. Business operations were expanded and shortly thereafter the firm with the celebrated "Tubular Furnace" installed units in the homes of many of the most prominent New York families of that time —the De Peysters, Lefferts, Morses, Doremuses, Motts, and the Fenwicks. The extensive properties of the Astor Estate also used many of these furnaces.

As a matter of fact the "Tubular Furnace" was manufactured, with adaptations from time to time, up until a score of years ago. As many of the modern boilers and furnaces still employ a development of the original projected fin, Mr. Thatcher's design can still be seen in any present day gas or oil show where the latest models of heating equipment are exhibited.

The "Tubular Furnace" went on to receive still greater recognition. The American Institute made Mr. Thatcher a life member and awarded him medals and citations for producing the "best furnace." Franklin Institute of Philadelphia presented him with medals for a "superior heating furnace," and the famous Crystal Palace in New York City, until destroyed by fire, contained a large exhibit of the furnaces he built.

Mr. Thatcher's abilities were further established when, at the outbreak of the Civil War, he was called to Washington to serve as a "dollar-a-year" man of that time. He made a place in history as assistant to Gideon Wells, for he helped design the famous "Monitor" and other iron-clad ships.

Carl Sahler
President, Thatcher Furnace Co.



John M. Thatcher
Founder, Thatcher Furnace Co.

After the war he returned to his business. Upon combining with several others to gain capital and men with business know-how and organizing ability, the firm became known as Thatcher Furnace Company — the name still used today. When the organization was well founded, Mr. Thatcher sold his interest to his associates. Thus he closed a long and distinguished career in creating better heating—and an important company in the heating industry.

Under the new management, improvements were made in the "Tubular Furnace," and a line of lower priced furnaces was added. The Company's products were further broadened by the addition of a complete line of cast-iron coal ranges, and later by combination coal-and-gas ranges. This move resulted in Thatcher becaming a household name over the nation, for in those days, and until years afterwards, many small houses and flats were considered adequately heated if the kitchen was equipped with a good-sized coal or combination range. Widespread sales of these ranges bring memories of large kitchens and hearty, old-fashioned home meals.

Enter the Radiator—The 1890's

The idea of distributing heat by radiators located in each room of the house began to take hold. Accordingly, Thatcher began to produce steam and water boilers. These included the "Sterling," a round cast-iron boiler; the "Thatcher Sectional," consisting of vertical sections connected by heaters at top and bottom; the "Champion," a cast-iron vertical section boiler to which a horizontal steel shell acting partly as a smokehood was connected; and the "Empire" boiler, a round cast-iron boiler—hundreds of which were installed in the Flatbush area of Brooklyn. The body or combustion chamber of the "Empire" was enclosed by four cast-iron "casing pieces" to help retain heat and improve appearance. This was the forerunner of the enameled steel covers of today.

With all these developments in heating, the company's sales had reached a point where all departments of the business had expanded. Additional property was acquired in Garwood, New Jersey, where Thatcher is located today. At that time also a policy of consistent, planned advertising began in "Harper's Monthly," "Cosmopolitan" and "Century Magazine."

Further Expansion—1907

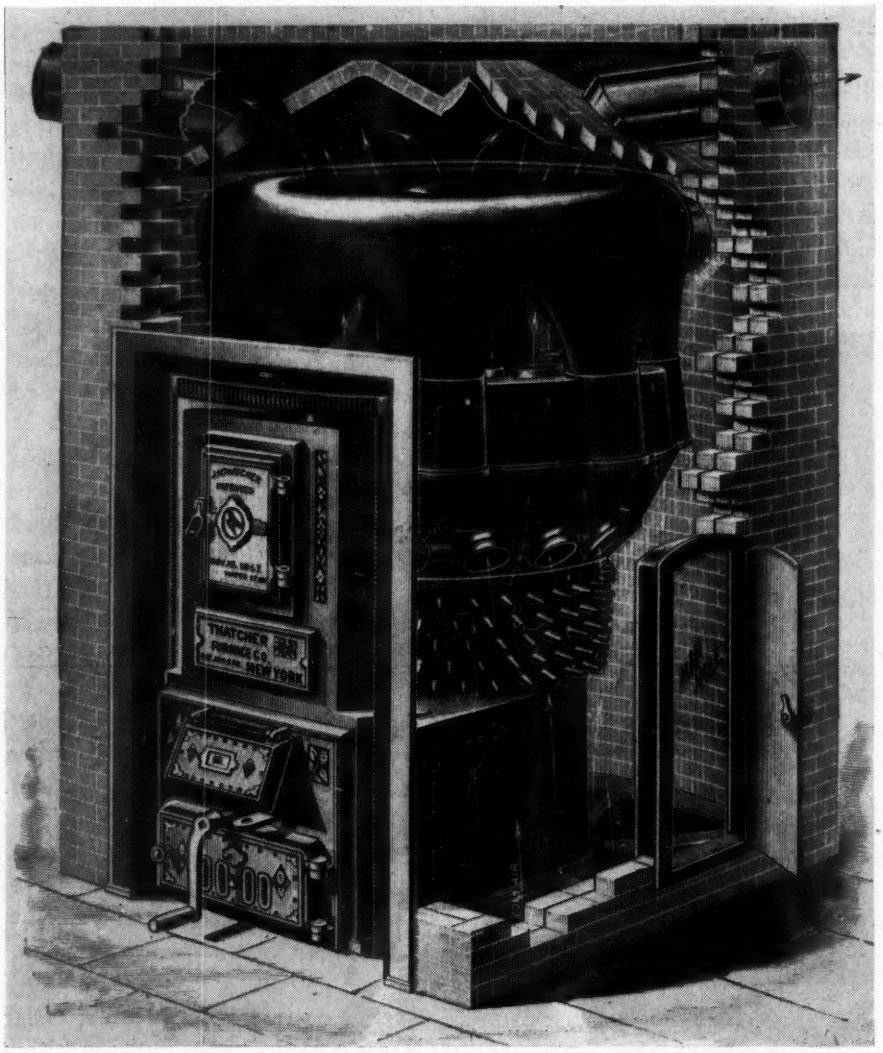
Success in the stove and boiler fields led to a line of marine ranges. The new product was given the name of "Mascot," and galley-ranges developed and sold extensively from New York to Seattle.

When World War I began, large quantities of heating and cooking equipment were furnished to the government. A special type of heating apparatus was produced for submarine chasers. And Thatcher's efforts during this time brought a citation from the War Department for "loyalty, energy and efficiency."

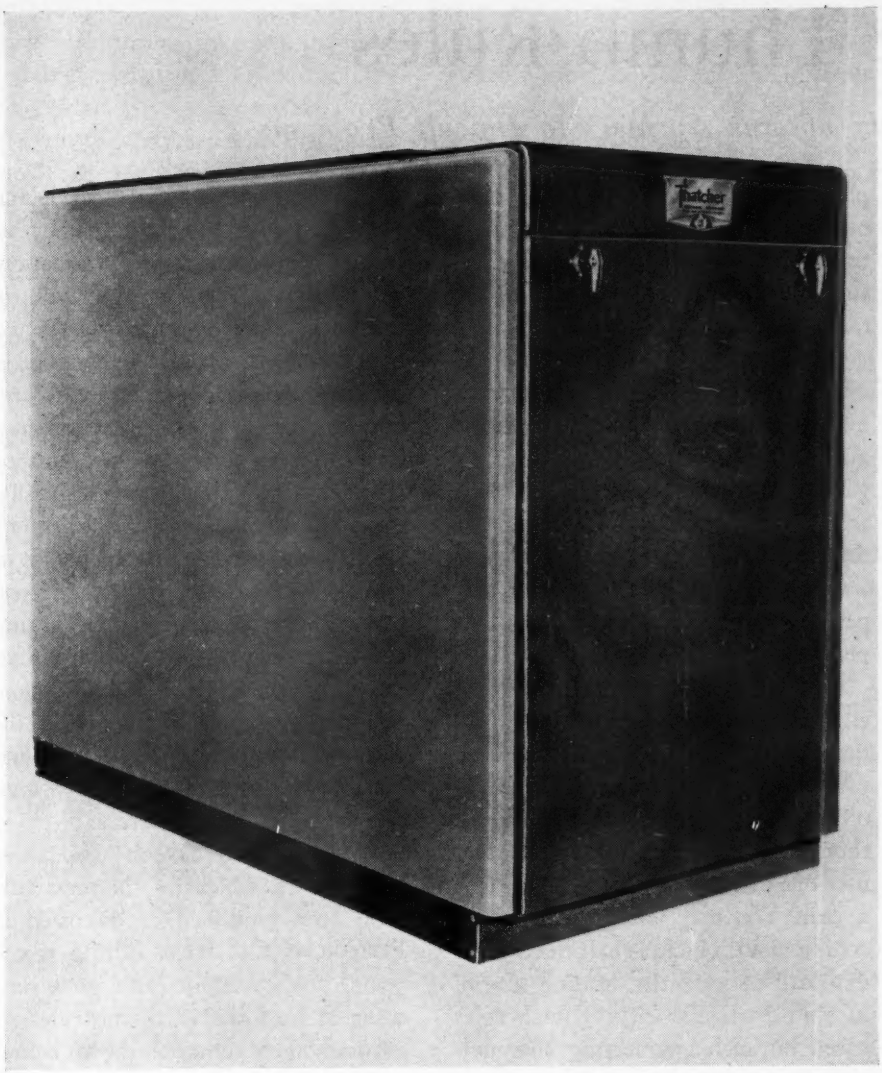
The post-war years introduced a tremendous upsurge in new construction and many changes in the character of Thatcher products. Boilers, radiators and ranges had developed to the point that their combined total represented a major part of the volume. By then, plant growth had increased by leaps and bounds and the once pioneer furnace company became a national organization.

Through World War II

The era from the late 20's through the depression and on to World War II was marked by great business peaks and deep economic valleys in the heating equipment industry as in others. Changes in production and design throughout this period played a part in creating better markets. The round cast-iron boiler gave way to a sectional, horizontal boiler fitted in an enameled steel jacket—and a boiler designed to burn oil made its appearance. As these new products developed, the old range



The Thatcher *tubular furnace as originally developed by John M. Thatcher.*



V-Series *oilfired Comfortmaster, modern counter-part of the original tubular furnace.*

line was discontinued and production concentrated on heating equipment.

In the late 30's automatic heating came of age, was more and more demanded, and had an important effect on Thatcher's production. The automatic "Oilmaster Boiler," a cast-iron boiler with tankless water heater designed especially for oil, appeared on the market as did the "Red King," a lower priced oilburner for mass building markets.

The early forced-air furnaces were superseded by gas and oil-fired winter air conditioners containing attractively colored jackets and efficient filters and humidifiers. Increasing public demand for winter air conditioning brought rapid expansion to this department of the company, and it was further activated shortly before World War II. Government defense preparations required thousands of houses without cellars near industrial centers. As the most satisfactory and economical means of heating these houses, the government designers promoted circulating warm air units. All this resulted in Thatcher's production of the C174. It was built to government specifications and used by thousands of defense workers and service men all over the nation.

Scores of Thatcher employees joined the armed services, and all remaining personnel worked around-the-clock shifts. They produced ammunition lockers, bomb-noses for incendiaries, incendiary-bomb cluster weights, steel flanges, masts and other boat parts.

At the close of World War II, Carl Sahler, President of Thatcher Furnace Company, directed the switch back to civilian heating products. Progress has marked these past few years for the number of products was more than tripled—first importance being placed on automatically-fired winter air conditioners. The sales department was completely rebuilt and national distribution greatly facilitated by an expanded traffic department.

Thatcher Furnace Company has now passed 100 years in operation, and the equipment produced tells its story of progress in this time. 1951 brings the company face to face with another era and its problems. Modern facilities and a heritage of experience fortify the organization to do the production jobs of the future—whatever they may be.

Canadian oil Consumption Sets Record during 1949

DELIVERIES of heavy and medium fueloils, heavy and light furnace oils and diesel fuels to Canadian users amounted to 1,624.8 million gallons in 1949, according to a report published by the Dominion Bureau of Statistics, Ottawa, Canada. About 27.4% of the total was used for heating homes and buildings.

Canadian refineries, according to the report, during 1949 shipped for export 9.6 million gallons of fueloil and 29,000 gallons of kerosene. Imports amounted to 95.3 million gallons of fueloil, 33 million of furnace oil, 37.2 million of diesel fuel, 68.8 million of stove oil and kerosene and 258,219 short tons of petroleum coke.

Total deliveries of fueloils, furnace oils, diesel fuel, stove oil and kerosene used for heating, cooking and lighting in 1949 were 654.9 million gallons, compared with 596.2 million gallons in 1948, the previous high.

A tabulation in the report shows the following number of "Furnace burners and boilers supplied with fuels" in 1949:

Atlantic Provinces	19,738
Quebec	61,474
Ontario	126,552
Manitoba	6,159
Saskatchewan	10,165
Albert and Northwest territories	3,365
British Columbia and Yukon	23,849
1949 Total	251,302
1948 Total	186,852

Estimates made by the Imperial Oil Co., Ltd., indicate that the total had increased to 375,000 oilburners in use by the end of 1950. About 125,000 net installations had been added to the number operating during 1950, including 50,000 in Toronto and vicinity.

How to Use Thumb Rules

Fingertip Information instantly obtains Answers to difficult Problems

by
J. W. Schulz

THUMB RULES are great time savers. In addition, they can be great face savers. We mean thumb rules used properly to obtain the accurate answers and dependable results of which the best oil heating experts can be proud.

You can understand how thumb rules save face if you imagine you have set yourself up as an expert in the field of oilheating, and then find an impatient architect snapping questions like these at you:

1. How many gallons of oil will be used in the month of January, and per year, for a furnace-heated home that's been well heated on 18 tons of anthracite per year?

2. How many gallons of hot water are used daily by the 640 occupants of a 250 family luxury apartment house?

3. How hard do you fire a 150 hp boiler to produce 150 hp from it?

4. With the nameplate missing and no data available on the furnace, how hard would you fire a big warm air furnace that heats a church, and which has a grate 30" x 43"?

5. What's the most fire you would try to crowd into a combustion chamber 15" wide and 18" long, where the firebox seems undersize for the load?

(Figure the answers for yourself, if you like. Our answers on p. 140.)

It is difficult, if not impossible, to answer questions like these without the use of thumb rules. Moreover, hundreds of similar questions, all best answered with the help of thumb rules, can be put to an oilheating expert.

Some thumb rules have common sense and experience as their basis. Good examples of these are the thumb rules used to arrive at proper sizes of oilfired water heaters, hot water storage tanks, and tankless heaters for all sizes of homes, commercial buildings, apartment houses, hotels, etc.

Without common sense and experience, it is difficult to say how many Btu's per hour are needed, for example, to heat properly the lobby of a bank building, where the amount of traffic through the lobby and the resultant air-change are the all-important factors.

Some thumb rules are based on statistics and measurements obtained from hundreds or thousands of buildings. Among these are our thumb rules regarding firebox dimensions and floor areas as related to gph rates, and the thumb rules about one occupant using a minimum of 10 gallons of hot water per day and a maximum of 15 gallons per day.

Still other thumb rules are born of engineering computations. If you figure out that in your city January usually has one-fifth of the degree-days of a heating season, you can form the thumb rule that in January a building uses one-fifth the oil needed to heat it a year. You may find that the three coldest months include half the degree-day load of an entire heating season, in your particular city. Thumb rules based on such engineering computations can be checked easily; you simply find out if a couple of dozen installations live up to the thumb rules.

There's great value to such thumb rules, once you've formed them and made a habit of using them. They become your fingertip information; you've always got them with you, in your head, though your textbooks and reference books are left at home or in the office. The rules permit you to produce answers at a snap of the fingers, for all tedious computing was finished when the rules were formed. Finally, you gain assurance in using the thumb rules. When you form them, you know you are theoretically correct, for you base them on academic knowledge and reasoning which you know are absolutely correct. To this solid foundation, you add assurance by applying the rules to dozens of problems; you find out this produces answers 100% logical, dependable, and correct.

If so far you haven't used these thumb rules, which for the most part have been published or discussed in FUELOIL & OIL HEAT during recent years, you certainly can't go wrong using at least the 12 thumb rules regarding oil consumption shown below.

Although the first three thumb rules have been taught to and used by a few thousand students during the past 15 years, you should check them by the

12 Thumb Rules regarding Oil Consumption

1. *During January, the coldest month, a building uses one-fifth of the amount of oil needed to heat it for an entire heating season.*
2. *During the three coldest months (December, January, and February), a building uses somewhat more than half the oil needed to heat it for an entire heating season.*
3. *For an entire heating season, a building needs about 85 times as much oil as is needed for a day of design outside temperature.*
4. *Many burners run a total of 1,500 hours a year for heating.*
5. *Many burners operating at high efficiency run a total of one hour a day to heat water in summer; burners relatively inefficient or carrying heavy water heating loads often run a total of two hours a day to heat water in summer. This is for year-round hookups.*
6. *For hotels, apartment houses, hospitals, and institutions, figure two-thirds of the oil used yearly goes for heating, while one-third goes towards heating water.*
7. *On conversion jobs that used high-heat-content coal, 150 gallons of oil may do the work of one ton of coal.*
8. *During the coldest month (January), a building uses as many gallons of oil a day for heating, as it would use tons of coal a year if it were heated by high-grade coal.*
9. *To produce approximately rated output from a coal-designed boiler or furnace, fire one gph for each two square feet of grate area.*
10. *To produce rated output from a boiler or furnace, fire it at the gph rate that produces 600° stack temperature.*
11. *In a two-story house that needs upwards of 1.25 gph, a good chimney should be able to provide at least .10" draft; in a small, one-story house, the chimney should be able to provide at least .06" draft.*
12. *At 70% efficiency, one gph produces three boiler horsepower.*

degree-day records in your particular city before settling down to using them in your everyday work. One reason for this is that your own checking will give you full confidence in the thumb rules that result from this. Another reason is that checking the rules will amount to memorizing them; after checking, you won't have to memorize the thumb rules word for word. You'll know the rules because they are based on records and make sense. The third reason for checking is important. The degree-day records in your locality may cause you to draw up thumb rules somewhat different than appear in the table. These thumb rules, in the table, apply to New York, Boston, Chicago, and Washington, D. C., for example, but may not apply to your locality as well as some slightly different thumb rules you can draw up for yourself.

Checking first three Rules

This demonstrates how to check the first three thumb rules in the table. Suppose a check-up on Chicago leads you to expect about 6,030 degree-days per heating season, and 1,240 degree-days for a typical January. If the January degree-day load is close enough to 20% of the yearly load to suit you, then rule-of-thumb #1 in the accompanying table fits your locality. From then on, January is one-fifth of the heating season in your computations.

Next, checking rule #2 in the table, add the degree-day loads of the three coldest months of the heating season, December, January, and February. Compare the total with the degree-day load of the entire season. For Chicago and the other cities just listed you may arrive at about 55%. A thumb rule of "half" may please you as close enough, and in addition you may note or remember the exact percentage your computations gave you, and use the exact percentage on the rare occasions when you want all the accuracy your computations produced for you.

The third rule in the table gives the factor of 85, although actually many experts use the round number thumb rule factor of 100 in this instance. Either these experts have found by actual check-up that 100 fits better than any other number, or they are willing to settle for rough results produced by easy multiplication. Form your own opinion on this, we suggest, by comparing the total degree-day load in your locality with the degree-day load of a day of design outside temperature, then checking actual installations.

Forming your own thumb Rules

This principle applies to all thumb rule work. If you form a thumb rule through sheer reasoning and theorizing, always check it on actual installations. You've got to check many installations to make sense and gain security and assurance. In science, one instance proves nothing. That's because there always are exceptions to the rule. Your checking will show if your theory agrees with practice. If the theory does not agree with practice, you can bet that the theory is wrong. Change the thumb rule, if necessary, to gear it to actual practice.

Thumb rule #4 in the table can be checked easily. Compare the amount of oil used during the heating season by pressure burners with their nozzle sizes. Where this rule fits, a job having a 1.5 gph nozzle uses 2,250 gallons of oil during a typical heating season; a job fired .60 gph uses 900 gallons of oil a year. For the sake of smoothest possible heating, nearly continuous operation on coldest mornings, and low stack temperatures, some experts aim to have certain warm air and hot water heating plants fired 2,000 hours a heating season, instead of 1,500 hours as thumb rule #4 indicates.

In servicing an installed pressure burner, these experts ask the owner about the yearly oil consumption, then divide this by 2,000 to arrive at the nozzle size they will use. Going through this procedure may bring out that often you have to over-fire the boiler or furnace in a small house to avoid nozzle plugging trouble. After all, not many men want to try a .40 gph pressure nozzle for a furnace that uses 800 gallons of oil a year! However, we've seen fuel savings of 35% produced on jobs that use from 3,000 to 10,000 gallons of oil a year, and these savings resulted from giving attention to thumb rule #4. Two steps did the trick. First, switching from a gph rate that gave 800 to 1,200 hours of burner operation a heating season to a gph rate that kept the burner running more than 1,500 hours a heating season. Second, replacing a shoddy combustion chamber, oversize anyhow for the new firing rate, by the best combustion chamber the dealer could engineer and construct.

Thumb rule #5 in the table speaks for itself. To check it easily, wire a self-starting electric clock in parallel with the motor of a burner that's providing hot water in summer. You do this on a year-round water heating layout having a tankless or tank-type indirect water heater, of course. Set the hand of the clock at exactly 12 o'clock. Return to the job in 24 hours, and look at the hands of the clock to find out the total "on" time of the burner per day. If the clock says one-thirty, the burner ran 90 minutes in 24 hours.

Knowing, through use of a clock or thumb rule #5, that a burner runs about one hour a day in summer to heat water, you need only know the nozzle size and the price of the oil to be able to say how much hot water is costing per month in summer on the particular installation.

The cost accounting of some large-building management companies hinges on thumb rule #6. This rule-of-thumb is particularly interesting to equipment dealers specializing in providing wholesale amounts of hot water at high efficiencies.

Coal and oil Consumption

The next thumb rule, #7, is given here at the risk of starting some arguments. According to their own experiences, some men will say the factor of 150 is too low, while others will say it's too high. Authoritative opinions and data can be cited by all those who argue. It's likely, though, that personally we'll stick to our opinion that in general a dealer is safe and reasonable in saying that it takes about 150 gallons of fueloil to do the work done previously by one ton of high-quality coal. We do this though we know of jobs on which 90 gallons of oil takes the place of one ton of coal used previously. We have impressive records proving that 17 closely watched oil-burners, heating the schools in one city, use from 100 to 110 gallons of oil per

ton of coal used previously. We know certain old government bulletins said that 134 or 135 gallons of light fueloil equalled a ton of coal. Going on up, we come to figures given out by coal interests "proving" it takes 200 gallons of oil to do the work done by one ton of coal.

For those readers who use the 150 factor we suggest in rule #7, we have a word of caution. Notice we say "may do the work of one ton of coal." Use such terms as "usually" or "in general" or "roughly," when you estimate coal consumption versus oil consumption. Don't be too positive! The high-heat-content coal referred to has about 13,000 Btu's per pound, by the way.

A building that can be heated by 200 tons of coal a year will use 200 gallons of oil a day during January, according to thumb rule #8. This rule is valuable in connection with selecting the sizes of oil storage tanks for new jobs, for it tells how often deliveries will be needed during January, the coldest month. Recently the owner of a factory, which used 80 tons of coal a year, wondered if a 1,000-gallon oil tank would be large enough, in a common sense way. As 80 gallons of oil would be used daily in January and 700 gallons would be delivered at a time to a 1,000-gallon tank, the answer was that on this basis the factory would need an oil delivery about once a week, or less often than this, during the coldest month.

Using the same thumb rule, you can tell the owner of a small home that about eight tons of coal would be used a year to heat the place, therefore he can expect to use eight gallons of oil per day in January.

Go on from there, if you like, tying in with the other thumb rules listed in the table. Eight gallons per day used in January means 240 gallons for a 30-day month. Multiplying this by five gives 1,200 gallons as the expected fueloil consumption for the year. Compare this with the eight tons of coal estimate you started with, and 1,200 divided by eight gives 150, which according to rule #7 is the number of gallons of oil equal to a ton of coal. Such reasoning around the circle brings out the point that the thumb rules in the table jibe nicely with each other. This is no surprise, confidentially, for they've been developed over many years' time to agree. If you make up your own thumb rules in the manner suggested earlier and they come out considerably different from those in the table, check them carefully to make certain they gear well with each other and agree in the manner just demonstrated.

Useful Equivalents

One boiler horsepower equals 33,475 Btu per hour at the boiler.
One kilowatthour equals 3,413 Btu, or 14 sq. ft. of steam radiation.
Cold water weighs roughly 8.3 pounds per gallon.
Hot water at about 150° weighs 8.18 pounds per gallon.
To provide one gallon of 150° water, heated from 50°, takes 818 Btu.
At 100% efficiency, 746 watts produces one horsepower from a motor.

Figuring new Installations

Thumb rules #9 and #10 help lay out new installations, and also help in checking the performance of problem jobs and trouble jobs. If you use rule #9 successfully for a furnace or boiler with no name plate, or on which you cannot get manufacturer's data that leads you to a suitable firing rate, you should wind up with about 600° stack temperature. That's banking, of course, on the job's having some kind of flue passages and secondary heating surfaces. Regardless of any thumb rules, the up-and-out type of furnace or boiler, which has no flue travel to speak of, will give higher than 600° stack temperature when fired to produce rated output.

Using thumb rule #10, you can answer a question about the advisability of adding load to an oil-fired furnace or boiler. Where the stack temperature is much lower than 600°, usually it is feasible to fire harder to carry additional load and bring the temperature up to about 600°.

Rule #9 helps arrive at a proper firing rate for odd jobs, such as bake ovens, incinerators, etc. It applies, however, only to grates for which natural draft is used when coal is burned. To equal with oil-firing the heat output of coal fired by forced draft, you may have to fire one gph of oil for every square foot of grate area.

Heat Content of Fueloil according to Gravity

Gravity Degrees API @ 60°	*Today Often Sold as Fueloil Grade*	*Heat Content in Btu's per Gallon*
38 to 44	*No. 1*	*133,500 to 137,000*
32 to 38	*No. 2*	*137,000 to 140,600*
28 to 36	*No. 3*	*138,200 to 143,100*
18 to 26	*No. 5*	*144,300 to 149,400*
10 to 18	*No. 6*	*149,400 to 154,600*

Arguments about proper draft are sometimes solved using rule #11. With the oilburner running and the smokepipe draft regulator tied in its maximum draft position, you should be able to obtain smokepipe draft readings as high as this thumb rule indicates. There are two clauses to this. First, the poor draft should not be caused by exceedingly low stack temperature; consider a stack temperature lower than about 400° as unfair to a chimney, not high enough to cause a good chimney to produce satisfactory draft. Second, the CO_2 content of the flue gases should be reasonably high, above 7% or 8%, because crowding a good chimney by feeding the flame vast amounts of excess air can cause an unsatisfactorily low smokepipe draft reading.

The last thumb rule is well known and needs no discussion. It simply ties in with the facts that at 70% efficiency there's approximately 100,000 Btu per hour available to a boiler as a result of firing one gph, and a boiler horsepower equals 33,475 Btu per hour at the boiler, as is listed in the accompanying table of "Useful Equivalents."

The accompanying table, "Heat Content of Fueloil according to Gravity," is based on the fact that the gravity of fueloil and the heat content are correlated; the weight per gallon of clean fueloil, that is oil free of impurities, corresponds closely to the heat content of the oil. Check for yourself one dealer's contention that the heaviest fueloils, used by the burners he sells, contain 10% more Btu's per gallon than the lighter, domestic fueloils. In indicating the gravities of the fueloils, and the grades often named by the fueloil dealers selling the oils, we are being factual. According to latest Commercial Standards and trade agreements, perhaps oil companies should be

(*Please turn to page 138*)

Less Loss, more Profit*

How to avoid leakage and evaporation losses at bulk plants and terminals

YES, you! You pay for avoidable losses of petroleum products at bulk plants and terminals.

If you own the plant, you pay the losses out of your own pocket.

If you work at such a plant, your employer's losses undermine your own job and your financial security.

If you are a citizen—and we all are—you pay because petroleum product losses mean that less oil is left to meet our vital national security needs.

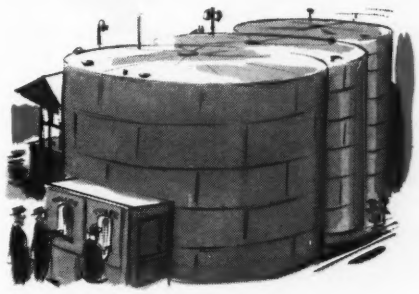
That's because all storage losses must be met out of the nation's bank of irreplaceable petroleum resources.

This booklet outlines ways of detecting and correcting those losses. It does not cover the entire subject by any means.

For more detailed information on specific problems, write API, Division of Marketing, for a copy of the technical report entitled "*Bulletin of Recommended Good Practices for Bulk Liquid Loss Control in Terminals and Depots.*"

. . . Liquid Gold in the Bank!

The oil storage business is just like banking — except that liquid gold is



used instead of currency. Receipts, inventories and disbursements (deliveries) must be recorded with precision.

In some ways, though, the banker's job is easier. Money does not undergo change in storage. It does not evaporate nor does it change in volume, quality and value with changes in daily and seasonal temperatures. If spilled in loading, currency can be picked up. Oil can't! Storage facilities for money need not be continually readjusted to new operating conditions to avert losses. Facilities for storing *liquid* gold must be.

Big job, isn't it? It can't be done right without accurate records.

. . . Check and double check!

Here's how you can double check your gauges to cut stock losses:

(1) Mark tank overall measuring height on each roof. Have qualified personnel certify heights and note them on tank calibration table. Check annually.

(2) Show reference points for gauging on gauge hatches or holes.

(3) Use approved water and gasoline indicator pastes.

(4) In general, take thermometer readings at vertical center of product. For more exact details on precise measurements refer to technical bulletin.

(5) Check condition of thermometer, tape and bob. Check the actual gauging to note the procedure and care used.

. . . Mind your Meter!

*Here are six steps to good metering.

(1) Check accuracy of rack meters. Compare liquid surface level after metering with compartment capacity marker.

(2) Check meter reading daily against truck capacity after each delivery.

(3) Repair and recalibrate rack and truck meters when necessary. Record all repairs and adjustments.

(4) Don't operate rack meters beyond maximum rated capacities. When this is unavoidable, install flow controllers.

(5) Clean strainers and check condition of air releases.

(6) Total your accounting forms and see that quantities dispensed check

*Prepared under the supervision of the Division of Marketing, American Petroleum Institute.

** Refer to technical bulletin for other details.*

with truck compartment capacities, or truck meter sales readings, and rack meters.

. . . Give loading Losses the heave-ho!

(1) Load product to proper point on compartment capacity marker. Make sure marker is fastened and sealed at the correct level.

(2) Paint capacity markers with chemical-resisting white paint.

(3) Check compartment measuring heights against gauge chart.

(4) In dry-line truck dispensing, check lines for dryness before and after loading.

(5) In wet-line dispensing, check emergency interval valves periodically for tightness against leaks.

(6) Fill tank cars only to top of underside of shell. When unloading, see that car is on level ground. Drain or pump it dry.

(7) Use level loading rack area. When impractical, check t. c. or transport carefully after unloading.

. . . "Have no Truck" with splash!

Cut your losses by substituting submerged loading of trucks for wasteful splash loading.* In a plant with a yearly throughput of 6,000,000 gallons, about 15,000 gallons may be lost in splash loading.

Submerged fillers for truck loading can reduce this loss to 6,000 gallons. That represents an annual saving of 9,000 gallons and a dollar saving of $900 with stock worth 10 cents a gallon.

Be sure submerged loaders are kept air-tight.

The most common method of subsurface filling is by use of counter-balanced drop arms. These also increase the ease of loading.

* *The same principle applies to tank cars.*

. . . Do you suffer from breathing Losses?

Do you have cone-roof tanks with open vents?

If so, chances are you can reduce breathing losses by 35 per cent.

Simply replace those open vents with conservation (pressure-vacuum) vents.

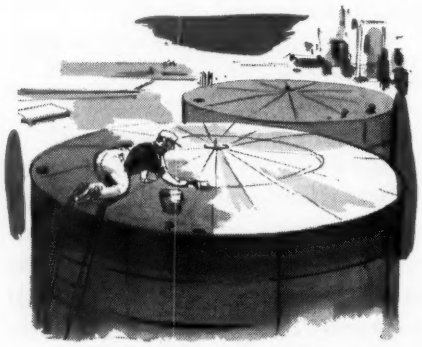
It will cost you some money but the resultant savings will enable you to write off the expenses in a few months.

If vapors are escaping from leaky roof seams, repair the tank roof and top angle. (See "A Stitch in time.")

. . . Paint out your Losses!

Self-chalking white paint reflects the sun's rays better than grey or aluminum paint.

A coat of white rather than aluminum whittles breathing losses 25%.



. . . . Less Loss, more Profit

The extra profit more than pays for the cost within a year.

. . . A Stitch in time!

Here is a revealing case history about how repairs paid off on a cone-roofed tank 30′ x 40′ with an annual breathing loss of 12,160 gallons. The roof, manhole and gauging hatch were not gas-tight. It had one open vent. The roof was unpainted.

Replacing the open vent with a pressure vacuum vent reduced the breathing loss to 9,120 gallons at a total cost of $450, including labor. Painting the roof aluminum cut the loss to 6,900 gallons but cost only $90. Making the roof, manhole and hatch gas tight cost $150 and reduced losses to 4,600 gallons yearly. Putting a coat of white roof paint over the aluminum cost $65 more and cut the losses to 3,680 gallons. In other words, for a total cost of $755 in repairs and improvements, breathing losses for that tank were reduced more than two thirds! Allowing a product value of 10 cents a gallon that meant a total yearly saving of $850.

. . . Get the Hook!

If this picture seems exaggerated, remember that oil leaks can "*hook*" your profits too.

One leak of only two drops per second means a loss of 1,351 gallons in a year. If leaking drops break into a steady stream, the annual loss is 8,780 gallons. If the leak breaks into a ⅛th

inch stream, 95,000 gallons are lost in a year. Figure what that means at a product value of 10 cents a gallon and you can see you cannot afford to neglect even the smallest leak.

. . . No round Pegs in square Holes!

Select the tank for the service.

Cone-roofed tanks are cheapest to construct. They may be used for most types of stock.

BUT they are subject to breathing and filling losses and windage losses, too, if the roofs aren't gas-tight.

Their average product inventories should be kept high to minimize their large vapor space volumes.

Large vapor space encourages evaporation losses.

. . . Bring Pressure to bear!

Pressure tanks practically eliminate breathing losses, but filling losses remain about the same as with cone-roof tanks.

Floating roof tanks, although expensive, also cut evaporation losses.

Where cone-roof tanks can be interconnected to a variable vapor space device, breathing losses can be practically eliminated for the entire system. The more common types of such devices are breather roof tanks, balloon roof tanks, lifter roof tanks, dry seal gas holders and flexible diaphragms. (See the technical bulletin for further details.)

. . . Keep 'em on their Toes!

A regular routine of inspection is a "must." In most plants, inspection procedure must be directed toward such main facilities as tanks, pumps, valves and fittings on loading racks and on yard and dock lines. Also inspect all supplementary accessories and fittings such as vents, flame arresters, roof and shell manholes, gauge hatches, valve stems, pump packing and loading spouts.

A qualified engineer, or an auditor with adequate technical background, should make such inspections. (See the technical bulletin for more details.)

. . . Build that Barricade!

Accurate records of receipts and deliveries of all products are as essential as physical equipment and manpower to the bulk plant or terminal operator or employee. Records are indispensable to stock control, the detection and

correction of losses, and the selection of the most efficient operating procedures.

Records of receipts must include those from refineries or other station transfers. They should show all purchases, exchanges or loans. Delivery records must show station transfers, purchases, exchanges, loans, deliveries to retail trade, and plant use.

❖

Lincoln Tech begins new Night oil heat Courses

ON APRIL 6 Lincoln Technical Institute, Newark, N. J., began a new series of Oil Burner Trade Extension Courses, to be held each Friday night for fifteen weeks. The courses, covering "Controls in domestic oilburning equipment," "Maintenance of heavy oil equipment" and "Selling oilheat equipment," are designed for men currently employed in the field as servicemen, helpers, salesmen or estimators.

The object of the instruction in oilburner controls is to teach their proper use and operation in the domestic oilheating system, along with correct adjustment and internal wiring, methods of repairing and rebuilding. Both theory and practical work is engaged in by students, utilizing a complete line of all types of controls made by the leading manufacturers.

In the heavy oilburner course instruction is provided in the maintenance and operation of burner equipment in apartment houses and other types of commercial buildings. Instruction also is given in the care and operation of controls for such installations. Lecture and demonstration methods are employed on all types of controls for commercial type units, including gas-electric ignition and programming controls.

Information on burners, boilers, furnaces, heating systems and their practical application is the nucleus around which is built the classes on selling. Students are divided into groups of 30 for lectures, demonstrations and class participation periods. Here again, theory is augmented by practical demonstration and instruction in the various types of burners and systems.

Tuition for each course is $75, payable in three equal installments. John W. Davies is director of the Institute, 256 Washington St., Newark, N. J.

Electronic Controls for Oilburners

Part. I. Basic electrical Ideas of Fundamentals and Circuits

by
George S. Whitney*

SAFETY, GREATER flexibility of control and speedier operation confronts everyone in Industry today.

Electronic controls and devices are being introduced to supplement or replace present systems to achieve these results. Oilburner men recognize the door to older control systems is gradually being opened by electronic devices. At the present time this is true more in the commercial areas, than domestic areas. There is no doubt but this movement is merely an infant and will grow with amazing speed.

All of these innovations present a problem to many men now in the heating field. Although they are well versed in the operation of mechanical linkages, thermo-couples, and bimetal strips, the vacuum tube and its operation in circuits is becoming a new addition to these components. They must master this vacuum tube to keep astride with advancements in the field. There is no doubt but many individuals in the oilburner industry fearfully recognize the importance of electronic devices in the control field but hesitate to accept them because they do not know how they function.

Analyzing electronic Circuits

This is a very logical feeling but need not exist, for the underlying principles of operation are relatively simple. The design of the equipment is definitely an engineer's job, but there is no reason why the average man cannot quite easily gain a fundamental approach to the operation of electronic equipment.

It will be necessary in analyzing electronic circuits to rely on several simple but basic electrical ideas of fundamentals and circuitry as follows:

(1) A simple electronic circuit consists of a source of electrical power, various coils, resistors, switches, etc., connected in a series manner. A source of power is required if an electrical current is to flow in the circuit. Other than the source of electricity the circuit must have an external electrical path through which the current travels from one side of the voltage source to the other.

(2) The flow of current in an external circuit is from the positive side of an electrical source around the circuit and into its negative side. (The term external circuit refers to the electrical path outside the transformer, battery, or electrical source).

(3) Every part of the external electrical circuit, if carrying current, absorbs its portion of the applied voltage. This portion can be measured by placing a voltmeter across the part and reading the value of volts shown on the meter. This value of voltage dropped across a component in the external circuit is called "voltage drop." If all the voltage drops around a series circuit were measured and then added together, the result obtained would equal a value the amount of which would be the same as the source value of voltage.

(4) In series combinations of components the unit having the greater value of resistance will have the greater voltage drop. The polarity of the voltage drop will be positive where the current enters the resistance and negative where the current leaves it. This all sounds interesting but what does it mean?

Fig. 1 represents a simple control circuit using a transformer as a source of power. This source of power furnishes 24 volts alternating current to the circuit. (Alternating current infers the current is moving back and forth in the wires in a manner similar to the piston rod on a steam locomotive. When mention is made of direct current it infers the current flows through the wire in one direction only from the positive side of the source to the negative.) This circuit is a series circuit inasmuch as there is only one electrical path from one side of the transformer to the other through which the current can flow. Realize that if the current moves in any part of the circuit the same movement has to occur in each and every other part.

Thermostat and Limit Control

The thermostat and limit control are fundamentally single pole, single throw switches and if either is opened, the electrical path is broken and no current can flow in the circuit to operate the relay. If voltmeter leads were placed across the thermostat some interesting observations could be noted. The thermostat is meant to open and close the circuit at a desired time, ex: when the room temperature is high it should open, likewise when the room temperature is too low it should close.

If the voltmeter reading is observed during these two operations these results should be noted. When the switch is closed the value of resistance should be relatively zero and will cause about zero voltage to appear on the voltmeter. It is now possible to see

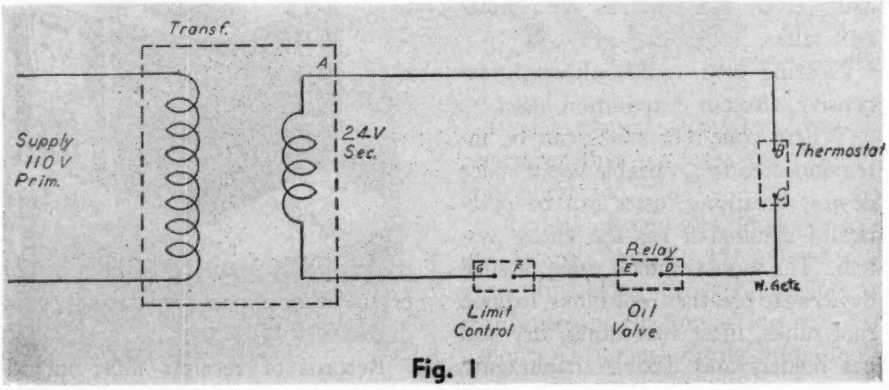


Fig. 1

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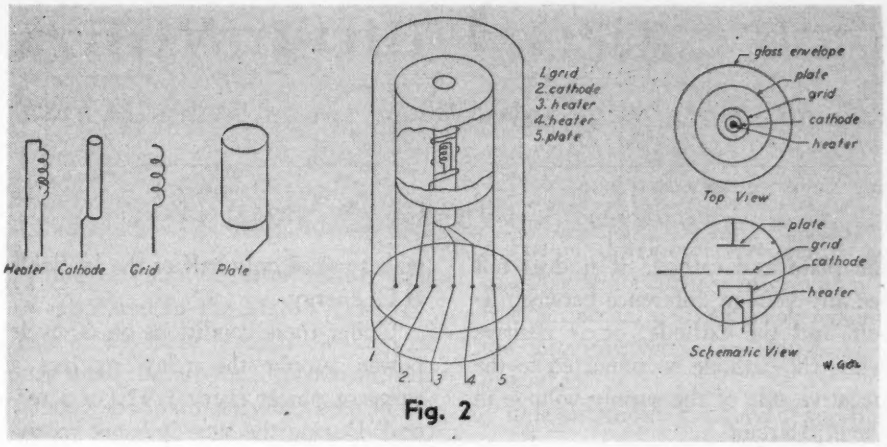

Fig. 2

what will happen when thermostat contacts burn. A poor contact is formed, a voltage will appear across the contacts when closed which will leave a smaller value of the line voltage to operate the rest of the circuit.

When the contacts of a thermostat open the resistance becomes very large (the opposite effect to closed) and relatively all of the applied voltage will appear across the contacts of the thermostat since here is now located a resistance many times larger than will be found in any other part of the circuit. Remember the value of voltage across the components in a series circuit varies with the size of resistance.

Peculiarity of Relays

In passing, consideration should be given to a pecularity of relays. Most relays are designed to operate with a definite value of voltage across their terminals. If the value of voltage is below the stated value the relays will not function. Consequently, if troubles occur in a circuit and if considerable voltage is "dropped" across parts of the circuit other than the relay, the remaining supply voltage will not be ample for operation of the relay.

A peculiarity of relays is that they require more voltage to cause them to be energized and close their armature than to hold the armature in the closed position. This operation has fooled many service men for they have been erroneously of the opinion that if the voltage is sufficient to hold a relay energized it should be of sufficient value to do the initial energizing.

There are only two or three concepts beyond those just described that need to be emphasized before one gains an insight into electronic controls.

The vacuum tube, its construction and operation, apparently is the evil-eyed monster that baffles the average service man. Since it is small, and associated with other fragile parts, it does not seem capable of meeting the rigid requirements of control equipment. Vacuum tubes have been used in peacetime radios and in many military apparatus for a considerable time. They are mighty midgets and are very dependable as time and use has exemplified. There are many makes, sizes, and designs of tubes but all that is needed to appreciate electronic control circuits is the basic knowledge of how they operate.

In Fig. 2 will be seen the basic parts generally found in vacuum tubes. The heater is used to furnish heat to the cylinder located around it which is called the cathode. The cathode when heated has the potential ability to attract an electrical current, (generally this concept is stated as emitting electrons but in this article only current flow will be considered to reduce the tendency for confusion). The spiral wire seen in the top view is the grid, which acts as a traffic director and tells the current where to stop and start. Around the outside of the grid is found a cylinder called the plate of the tube which acts as the spring board from which the current jumps to go to the cathode. These items are represented on most wiring diagrams in the schematic manner as shown.

Basic Idea of tube Operation

The basic ideas as to the operation of this tube are as follows:

(1) The heater attracts the electric current only if heated and connected externally to a negative side of a voltage source.

(2) The plate is that portion of the tube from which the current can come to go to the cathode. It must be connected to a positive side of the supply voltage, either through a resistor or relay, or directly, to be able to furnish current to the cathode. It must be remembered that current flows from the positive side of a voltage source through the external circuit to its negative side.

(3) The fine wire spring-like spiral is called the grid. Its purpose is to turn on or off the current flow between the plate and cathode under certain conditions. In fact, it acts like a switch either connecting or disconnecting the cathode to or from the plate.

The operation of connecting or disconnecting the cathode to or from the plate depends upon a voltage difference and proper polarity between the grid and the cathode.

In Figure 3 the tube contains a plate, cathode, and a heater. The heater is connected to a supply of voltage which will cause it to heat the cathode (connection not shown). The cathode when heated is ready to draw current from the plate. Current will flow since the cathode is also connected to the negative side of the supply as well as the plate to the positive supply terminal through the relay. This current

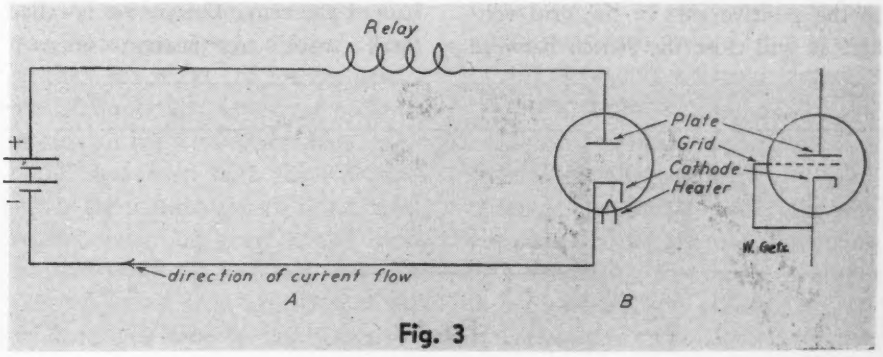

Fig. 3

flow will energize the relay coil.

If the battery connections were reversed so that the negative terminal of the supply was fastened to the plate and the positive terminal to the cathode, no current would flow since it can only pass through the tube from the plate to the cathode. Every tube is a one-directional device as far as current flow is concerned. In Fig. 3b the grid connection to the cathode, neutralizes the action of the grid. Consequently, when such connections are shown, the tube may be considered as consisting of a plate and cathode only. The external circuit, starting with the plate through a resistor or relay and then through a source of power to the cathode is the plate circuit.

The grid and grid Circuit

In Fig. 4a a grid has been inserted into the tube operation. When it is connected as in Fig. 4a to a negative side of a voltage drop across a resistor and the cathode is connected to the positive side, no current will flow through the tube and the relay will not be energized. This action is similar to an open switch between the cathode and plate. This external circuit consisting of a connection from a grid through a resistor to a cathode is referred to as the grid circuit. In Fig. 4b the grid is positive with respect to the cathode and current will flow. This is similar to a switch being closed between the cathode and plate. This action can also be acquired in many tubes under the condition of zero voltage difference between plate and cathode as was represented in Fig. 3b.

The grid is a circuit maker or switch attendant and controls the action inside of the tube. It keeps the circuit between the plate and cathode open if it has a negative polarity at the same time the cathode is connected to the positive side of the grid voltage. It will close the switch between the plate and cathode if it does not see any voltage difference between itself and the cathode, or is positive while the cathode is connected to the negative side of the supply voltage in the grid circuit.

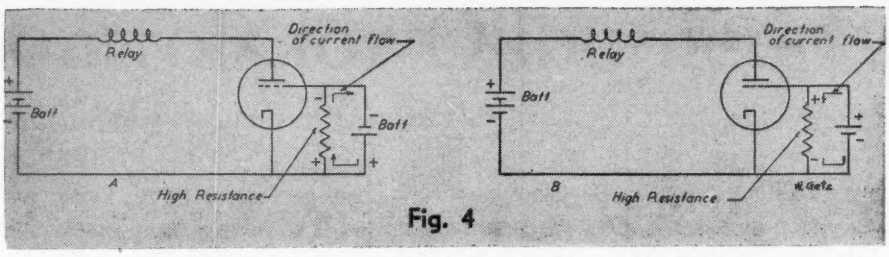

Fig. 4

Since batteries are not used in oil burner control work, it is necessary to understand some idea of how an alternating current functions in vacuum tubes. Fig. 5 is the same as Fig. 3 with the exception of the battery being replaced with a transformer. The secondary side of the transformer is in the plate circuit of the tube. Alternating current, since it forces current first one way through a circuit and then the other way, will only be forcing current through the tube one half of the time. This could prove confusing unless in the analysis of circuits A.C. is considered as two separate thoughts. One when the secondary polarities A and B are plus and minus respectively; the other when A and B are minus and plus respectively. When A and B are plus and minus respectively the plate will be connected to a positive source while the cathode is connected to a negative source, during this period current will flow through the tube. When A and B are minus and plus respectively current cannot flow through the tube because the current must flow from the plus of the source to its minus and to do this it would have to flow from the cathode to the plate which is not possible. When a transformer supply is used the tube will pass current only half of the time. This action is called "half wave" rectification since it makes use of only half of the available A.C. energy.

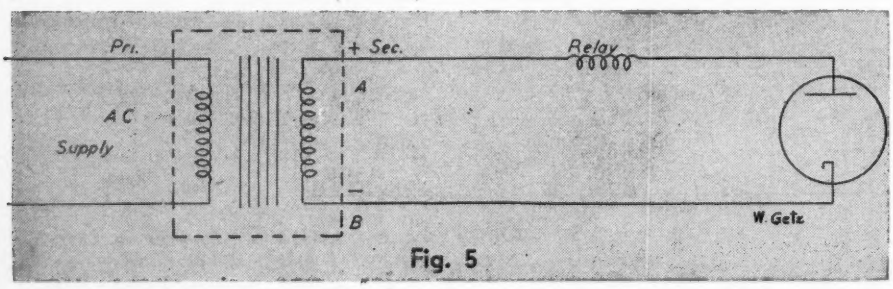

Fig. 5

Under these conditions on 60-cycle power supply the relay receives a surge of power every 1/120 of a second. During the time it is not receiving energy it will tend to drop open. Due to its mechanical inertia it is unable to drop completely open, but will tend to sing or chatter.

A condenser is placed across the relay terminals to prevent it from chattering, This condenser stores some of the energy every 1/120 of a second and feeds it to the relay on the off-energy periods.

The necessary fundamentals for the understanding of basic electronic control circuits have now been covered as a preliminary study lending itself to an understanding of the typical electronic flame failure circuit, to be presented as Part II in the June issue.

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Carroll M. Baumgardner, vice president for sales, National Radiator Co., Johnstown, Pa., has been appointed consultant to the Heating Branch, Building Materials Div., National Production Authority. He originally was called to Washington last December to assist in the formation of Heating Industry Advisory Committees in the cast-iron and steel heating boiler, radiator, convector, baseboard, hot water and steam heating accessory industries.

B. V. Ronco has become chief engineer, Morrison Steel Products, Inc., Buffalo, N. Y. He was chief inspector for Mack trucks for the past 13 years and before that had been in Mack's engineering department as assistant to the bus engineer.

Know your Costs

Part II. Facts for the fueloil Distributor about Advertising and Selling

by
H. H. Ragle*

IN THE FIRST OF THIS SERIES, as it appeared in the March issue, several of the more familiar elements of cost were the subject of comment. For as long as the industry has been in existence there has been a deplorable lack of real cost consciousness by the industry as a whole. There have been almost as many conceptions of methods by which to determine costs as there are companies in the business. One might obtain many, many answers to a question as simple as—"what items of expense do you consider properly chargeable to the direct sales cost?" or "to the direct delivery cost?"

Such a lack of uniformity in fundamental cost finding, results in many "slip shod" conclusions and too much resignment to false security and smug satisfaction.

A strong plea was made for the various segments of the industry to become more cost minded, and in turn to really do something in the way of developing an adequate, but simplified, cost system. And again let it be stated that an elaborate "split-hair" procedure is not only wholly unnecessary, but it could easily assume the proportions of a Frankenstein monster—and thereby defeat the very purpose for which created. Avoid too much detail.

Fueloil distributors frequently get together and exchange information as to experiences, methods employed, and the costs involved in certain phases of operation.

One distributor's method of accounting does not properly consider the element of depreciation, and he tells his friend the *direct* cost of delivery. His friend may have *still another* conception and method of handling depreciation, so the figure he names is appreciably higher than the first figure quoted.

The first man is thereby lulled off to sleep as it were, in a feeling of great superiority—because his cost is so much lower than that of his friend. The second man—whose cost may, or may not have been properly determined—silently feels his friend has been bragging again, so he concludes that "after all, my cost must be right"—AND SO neither of them do anything about it. The most wholesome original idea of exchanging information for their mutual betterment has come to naught. It has been too much like the case of the several men blind from birth, and feeling the various parts of an elephant. Each of them told an entirely different version of the elephants probable appearance.

Moral for the fueloil Distributor

The moral from this old story might be for a fueloil man to resolve that he will never get in front of an elephant on a rampage—for it may wreck him, just as truly and literally as ignorance of costs, during these inflationary times, and the corresponding inadequacy of margin, is certain to be a terrific drain on the "life blood" of his business—that all important element of profit or reward for the services rendered.

By comparison with the youthfulness of the industry, bustle skirts, linen dusters, motoring goggles, the hand cranked telephone and a 39-year-old radio comedian seem like relics of the old-fashioned "coal for heating days"

H. H. Ragle

of a crude dark old era of the past. But now that the industry has rounded out five or six short years of phenomenally rapid growth, which challenges credulity, it is time to face a few more facts.

The typical fueloil distributor of today, as well as of yesterday, is facing a two-fold dilemma: (1) sensibly cutting the cost of operation through the employment of methods designed to get more out of the payroll dollar expended for sales and for labor, and/or (2) securing from his source of supply a more adequate margin to partially offset at least some of the largely uncontrollable costs he is experiencing during these unsettled times.

You control the means of solving the first problem. However, the road to wider margins may be a doubly long, tortuous one to travel, because the industry has not, as yet, been able to present a sufficiently unified front to back up the commonly accepted factors of operating costs.

It should never be considered out of style to get down to earth and ascertain true costs as involved in the various phases of the business. The industry's best chance for obtaining relief is through its ability to present a unity of conception as to the actual costs

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**From bits of information secured here and there, the Editor has learned that soon after this author's birth in south eastern Kansas, he was discovered playing around an oil well almost from the time he crawled out of the cradle. In other words, he is a native of the wild of wooly mid-west, South Eastern Kansas—the Sunflower State, the home of Carrie Nation and Alf Landon.*

After finishing college he returned to Kansas and became associated with a large refining enterprise which later afforded the opportunity of initiation into the building of marketing outlets, bulk stations and finally one of the first—if not the first—drive-in gasoline service stations in the United States. At least one of his friends once said "Ragle is a figurehead, for he is always figuring out some way to cut costs and do a better job." During a number of years as Vice President in charge of Marketing for a large independent company operating in the midwest, he took an active part in pioneering work pertaining to the use of fueloil. Since the Spring of 1934 he has specialized as a petroleum marketing consultant with headquarters in New York, and has served many of the principal fueloil distributors of the East.

which are essential in the operation of the business.

Amazing progress, for the common good of all the units of the industry, will be the inevitable result if only each company will carefully analyze its own individual problems, and stop kidding itself along the line that it can continue to wink at sound business methods for the sake of bending over backwards to render some of the common extremes of service which have for so long plagued the industry.

Do a better Job each Day

Strive each day to do the job a little better than it was done the day before. Educate customers to a clearer understanding of your problems, where necessary, in order to avoid fire department speed in attempting to make deliveries, because they have not cooperated with you for automatically scheduled deliveries. Curtail abuses of credit. Watch collections more closely. The distributor must realize that present price levels mean that accounts receivable cannot be carried as inexpensively, as when oil was selling for half of its present value.

Knowing and analyzing your costs will be the most effective medium by which to emphasize the necessity of correcting any laxity in the administrative functions of business, after which it is largely up to the employee to produce more results for the dollar paid him.

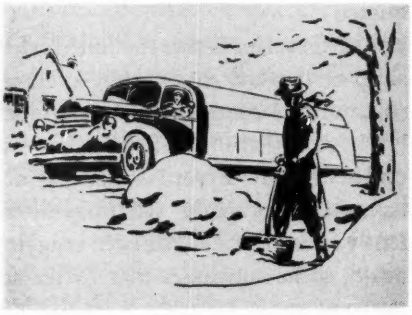
There are, of course, certain limitations beyond which one might not go, in raising the plane of efficiency, and still operate within a range of commensurate cost, but each new day will bring new problems and new opportunities to maintain a highly satisfactory service to the fueloil consuming public upon which the industry must depend for support. The common problem is, therefore, to know more of your costs in order to better discern the difference between something that one might like to do, and that which one can afford to do.

Do not wait for the industry as a whole to bring about a fully unified standard of cost finding before taking all possible steps to determine your own costs.

Then you are certain to do every reasonable thing, as may be required, to keep your costs on a level consistent with a sensible operation—and at a profit.

There is no gainsaying the fact that the overwhelming bulk of the ultimate retail distribution of fueloil is through the independent distributor who, at best, has only one avenue for profit—so far as petroleum is concerned. He has no gross revenue from (1) production, (2) refining and, (3) transportation to fall back upon. He must depend upon what he can save from the gross margin he has to cover, the actual retail sale and delivery of the finished product.

Many times he is compelled to assume additional responsibilities through the sale and servicing of equipment—



ofttimes at an outright loss by reason of very keen competition, and the frequent inadequacy of the burner service revenue.

To know your costs, and for each unit in the industry to assume an agressive and cooperative position in the furtherance of a united front, is only to pursue a course of fundamental common sense.

So much for the thoroughly familiar angles or viewpoint from which an accountant might look upon the subject.

Why not a still deeper and positive approach? Give consideration to some ideas of premeditated cost control, as deliberately designed to maintain costs on a plane commensurate with good business sense.

In business, average men would certainly never cherish the idea of performing a surgical operation, or cutting each other's hair, pulling teeth or tearing down and rebuilding a motor truck—yet so many oil men seem to think that as advertising copy writers they simply cannot be excelled.

Since the fueloil distributor is, or should be, a specialist in the sale of oilburners and fueloil or kindred services, he at times is loath to accept the fact that an advertising expert, a successful specialist in his line for many years, can write sales copy which will really produce results.

So many firms wind up not knowing their costs, until they have spent a lot of money on wasteful forms of advertising—general blah, blah publicity, so frequently illustrated by the picture of a big oil truck or a storage tank—which they are not really trying to sell anyway, to say nothing of the fact that the "prospect is more selfishly interested in clean, safe, uniform heating comfort—care-free, so far as he is concerned—and, further, does not want to be bothered by any necessity for too frequent service calls, or too many small deliveries.

He is not interested in buying your truck or any part of your storage plant. Know your costs for poor advertising. Know how much in turn you can afford to spend for good advertising, what mediums to use—and then get the most capable assistance you can find. "Reason why" advertising copy, expertly prepared, has sold more merchandise than all the general blah, blah copy one could store in Madison Square Garden.

Know your selling Costs

Know your costs when it comes to the art of selling. Careless, indifferent selling can be very expensive—and enough so in fact to wreck your business. If oilburning equipment sales are to be the media, by which 50 per cent of the national average in the number of new accounts is also applicable to your business, think in terms of the equipment sale and the service incident thereto being primarily for the purpose of creating another permanent user of your fueloil, rather than for the soon-to-be-forgotten profit from the one time sale of the equipment.

It is not good business sense to "high pressure" a burner sale to someone, whose earning power or credit capacity is obviously insufficient to warrant your belief that it will be a profitable fueloil account.

In another type of sale, the account might be too far distant, or too isolated,

to ever seriously justify any hope of profit from handling the oil business thereafter, at any kind of a margin that you feel will be available.

Bear in mind also the reduction in delivery cost which may be effected, if the prospect can be justifiably sold a larger than a 275 gallon tank. Deliveries to a 550 can be made for just about half the cost of delivery to the smaller tank.

Selling larger Tanks

A few years ago the narrator was astonished to observe the far sightedness of one burner distributor and fuel-oil marketer who had continuously pursued a policy of selling large tanks, and right in the heart of a large metropolitan community where everybody else was selling 275's to most every home that did not keep a vicious dog.

In making a breakdown and studying the allocation of accounts geographically, it was beyond belief that more than 50% of this company's installations were larger than 275 gallon tanks and, furthermore, they were well concentrated within a practical and potentially profitable radius—so far as distance was concerned.

The company's answer was "we did it deliberately, because we were planning on the oil business for the future, and knew that we could not only save a great deal of money on deliveries—but we would also have a better class of credit risk."

This distributor knew his costs and each year made a good profit, while many of his wailing competitors gave free burner service, cut prices on oil—and wondered why earnings were "lousy" and why they had such a large turnover in accounts.

Most, if not all, of the companies in this particular area who were short-sighted enough to perpetuate so-called "free service" and cut prices finally had their rude awakening on costs, but they had to learn the hard way.

Some of them, naturally, went bankrupt. Others had "death bed confessions," figuratively speaking, and in their desperation found out that the "crime of free service" does not pay.

The company so soundly built up by this far-sighted cost conscious gentleman, first mentioned, has since passed from the founder to his able sons—and is still flourishing in the third successively larger and finer plant and office facilities, which the growth of the business has required because they knew their costs and were never hesitant in the matter of employing better methods and procedures to keep costs consistently low.

True, and very true that it was impractical—if not impossible—for the industry to successfully expand burner sales without catering to the smaller home and the smaller purse, as well as those who afford the larger tanks.

To know one's cost is to place greater stress on intelligent selling. That kind of selling, in turn, is also to mean a profit. The distributor should contemplate the type of an installation which is to be made of the tank and the equipment. In certain communities where the oilburner dealer has not been so directly interested in the sale of the fueloil, it would seem that great pride has been taken in making the installation about as cheap as it could possibly be from the original sale viewpoint, and just as expensive from a fueloil delivery standpoint.

Installation Deficiencies

Installation with wholly inadequate venting conditions, small fills, improper pitch of the fill line, inaccessible location for the tank, perhaps making it impossible to gauge it ever—or to have the slightest idea when safely filled.

In other cases the tank may have been located so poorly that even 175 ft. of hose or more—would have to be used, and a part of that dragged over a high board fence, or perhaps up a steep grade. Many, many examples of such stupidity have been observed in various localities and according to the latest advices those responsible are still free men. Why?

To know your costs certainly must take into consideration the needless cost of trying to serve such outrageously installed equipment. Equipment sales should be governed by a cost-mindedness that includes the idea of feasibility and reasonably low cost effort in subsequently caring for the oil requirements.

Many oil men seem to entirely overlook the density of potential customer population, with the result that widely scattered accounts—some at great distances—are accepted, and then carried from year to year at a loss, in the ever present hope that beats strongly in every oil man's breast, "We can't drop that account, or those accounts, because we are going to eventually build up that area so that it will be profitable." The sad sequel in numerous cases coming within personal observation "optimistic hope still springs eternal," but nothing is ever done about trimming of unprofitable business, because of its isolation and lack of customer density.

The Fallacy of Price cutting

In spite of innumerable and flagrantly devastating examples to the contrary, it seems that many distributors will never learn that petty chiselling under a fair and reasonable price does not increase the over-all consumption of fueloil by so much as one gallon.

Such conduct usually results in competition meeting the cut price in self protection, so that everyone in the area suffers a shifting of volume and winds up with a lower gross income and more headaches.

Unless the salesmen of the company participating in such practices are suffering the curse of a bulging waistline, and feel that they simply must resort to wasteful practices to regain their streamlined appearance, there is surely no point in such pseudo substitutes for good business, for more work of all kinds will be required.

A proper knowledge of costs would readily indicate the necessity of selling 50% more fueloil in order to make up the loss sustained in foolishly cutting the retail price by the equivalent of one-third of the prevailing gross margin.

Without malice to the proponents of free burner service, it is unique in that no other great industry doing business on such a nominal margin of gross profit has ever long permitted such an unsound and devastating practice to prevail. The usual oilburner guarantee extends over a period of one year, as contrasted to the 90-day guarantee of the leading automobiles.

As far back as 1938 some of the leading exponents of the so-called free burner service, readily admitted a cost

(*Please turn to page* 140)

Adding a blower Package

Procedure for changing gravity warm Air to forced Distribution

by
Marvin M. Hertz

THE FIRST STEP in a successful installation is a thorough cleaning of furnace and pipes. Do this first, and be sure to do it well. Remove the upper jacket and clean furnace castings, casings, and bonnet, as well as the pipes with a vacuum cleaner. Remove loose rust from the castings with a wire brush. It's always a good idea to finish this part of the job with a final wipe-off with a rag to pick up fine particles you can't get with a brush. Disconnect the pipes at the riser boot or first floor register box and swab out the pipes and the boot and riser if possible. It is important that the dirt which has accumulated in the corners, cracks, and joints be removed. Don't shirk on the cleaning job. The blower package is going to shoot a blast of air into the pipes in comparison to what air velocity had been with gravity. A good cleaning job and you'll have a happy customer—a slip-shod one, you'll have a headache.

Install a Baffle in the Bonnet

The second step involves installing a baffle in the bonnet. A circular baffle installed in the bonnet insures all ducts receiving air at the same temperature, and prevents uneven heat distribution. The baffle consists of a cone fastened to the upper-casing ring. The cone has about a 30-degree slope, and the inside diameter is approximately two-thirds of the casing diameter.

Next, build a blower platform. Since most basement floors slope, a simple cement platform about ½ inch above the floor, which is leveled on top, should be provided.

This general procedure for installing the blower package is largely applicable to all blower packages, regardless of manufacturer. Naturally, each manufacturer publishes complete instructions. The following are presented only to give an idea of what installation involves. By following this type of procedure, a blower package can be installed in a very short time.

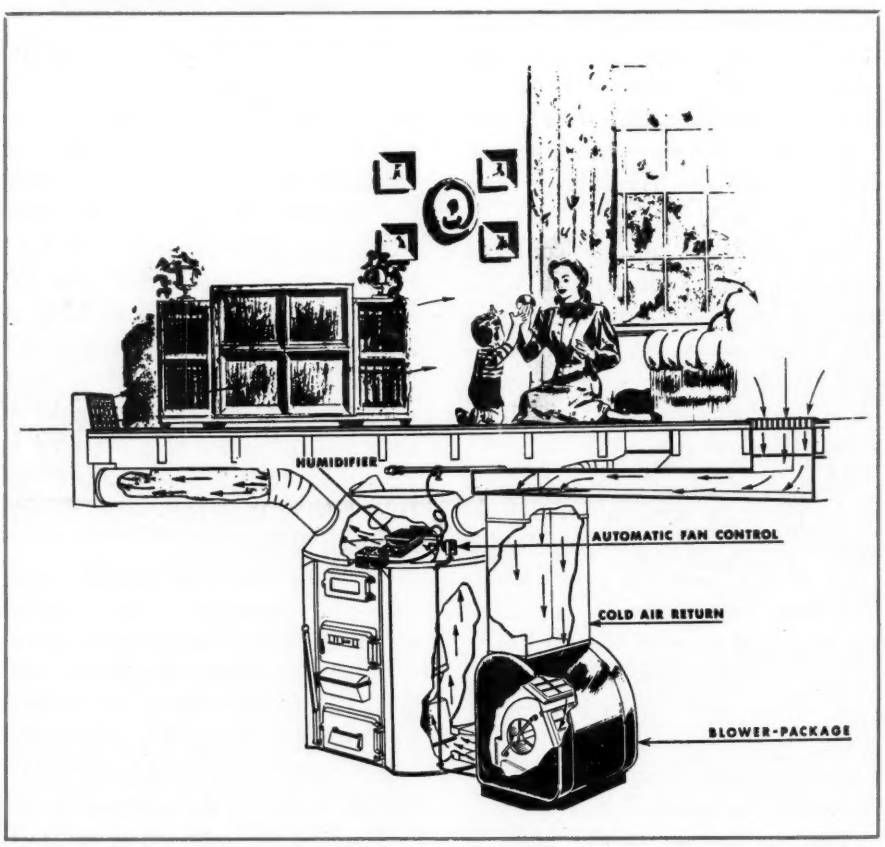
a. Attach warm-air outlet form around blower outlet.
b. Set cabinet on the foundation, and make sheet metal connections between the blower cabinet and the furnace jacket. Connect cold air return.
c. Lightly grout-in the cabinet to the foundation, so as to prevent air leakage.
d. Install the blower in the cabinet. This operation varies with type of blower.
e. Mount the motor on the base, and install motor and base in cabinet.
f. Attach pullies, line up, and tighten belt.

A separate circuit should be run from the main switch or fuse box for the blower. This is highly desirable because it prevents the blower being shut off due to a blown fuse from some other appliance. It also eliminates light flicker when the motor starts, which sometimes occurs with inadequate wiring.

The blower should be wired in flexible conduit. A separate fused safety switch should be connected into the blower circuit. The automatic blower control should be installed in the bonnet and connected in series with the blower circuit. Follow the instructions enclosed with the blower control.

Cold-air returns always are desirable and often necessary. It is good practice to have at least two cold-air returns. It is sometimes practical to use cold-air drops from several rooms into the basement rather than connected cold-air returns. Under no circumstances, however, should cold-air drops be used where there is more than one furnace in the basement. In this case, connected cold-air returns are absolutely essential.

To balance the system properly, install lock-tight dampers in each duct. Then, when the system is operating properly, use a thermometer in each room and adjust the delivery to each room so that a uniform temperature is



General view *of converted system, showing the position of the blower-package and the cold air return duct.*

maintained throughout the house. This is extremely important if uniform heat is to be maintained, because just as with gravity, the rooms fed by ducts with the least resistance will get the greatest volume of air.

The adjustment of blower speed is important and should be done carefully. With the burner on, insert a thermometer in the warm air duct about a foot from the furnace. If the temperatures reads above 165 degrees the blower speed should be reduced.

Change of blower speed to give proper velocity and volume of air circulation can be made in two ways on most blowers. 1. The split-sheave pulley on the motor can be adjusted to give up to 30% variation in speed on many blowers. 2. The pulley on the blower shaft may be changed to give desired speed.

In most cases the controls on the blower should be set so that it starts at about 100 degrees and cuts out at about 85 degrees. Setting up cycles this way maintains a fairly uniform air register temperature, and saves fuel. Although gravity will tend to move warm air out if the blower cuts out before temperature drops to 85 degrees, a great amount of heat loss occurs that could be minimized by the blower. In the case of a hand-fired coal furnace, the blower should come on at about 150 degrees, and cut out at somewhere around 135 degrees.

Continuous air Circulation

It may be that you have sold the home owner on the genuine benefits of continuous air circulation, and you want to set up the new blower to provide it. To do this involves only a little more time and work than the installation already outlined above. It is well worth the small difference because it will give your customers the satisfaction they deserve and want. It will build your profit and prestige, too, so you'll surely want to consider it.

Here is the procedure as outlined by the National Warm Air Heating and Air Conditioning Association:

1. Check location of thermostat to see that it is not too near a direct flow from a register, or other sources of heat such as rays from the sun, hot-water pipes, etc.

2. Make sure all warm air registers and return-air faces are clear of any obstructions.

3. Adjust the blower speed and controls. Air volume is adequate as long as it supplies the run having the most resistance. Set the blower to cut in at approximately 100 to 110 degrees for high side wall registers, and 110 to 120 degrees for low-wall registers. Set blower control "cut out" at minimum differential, approximately 15 degrees lower than "cut in."

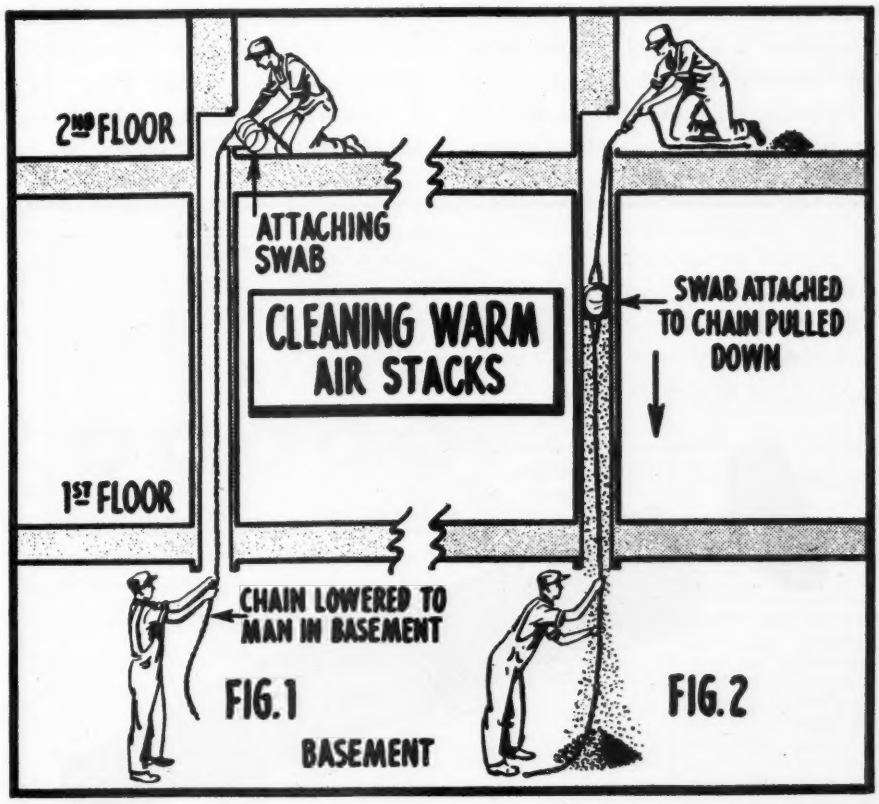
4. Set limit control "cut out" at 175 degrees. Only in rare cases will a higher setting be required.

5. Adjust all registers so that air is properly deflected. Air should not discharge directly into space normally occupied by people in room.

6. Adjust dampers to balance system properly for the revised air delivery. Set thermostat in comfort zone (usually 70 to 75 degrees.) NOTE: For complete details, the National Warm-Air Heating and Air Conditioning Association, 145 Public Square, Cleveland 14, Ohio, has published Manual 6, "Service Manual for Continuous Air Circulation Technicians" available on writing, for 60¢.

A furnace blower package properly installed in the home will give years of trouble-free service, and will require very little attention; as a last step in the installation, instruct the home owner. After you've cleaned up the job, invite him down to see the nice work you've done.

Construction *of swab to be used for cleaning warm air ducts before converting a gravity system to forced air.*



Recommended method *for cleaning warm air stacks. The chain, to which a swab is attached is dropped to the man in the basement. He pulls down the swab and wipes accumulated dirt into the basement. Never pull the swab up through the stack because it carries dirt into the upper rooms.*

Importance of clean Combustion

Part I. Wasteful and inefficient combustion resulting from excessive smoke production

by
George Gardner*

FOR MANY YEARS combustion engineers have recognized that excessive smoke is the result of wasteful and inefficient combustion. While this is true for all fuels, it is particularly important in the combustion of fueloils since these fueloils are traditionally considered to be "clean burning" fuels. Complacent acceptance of excessive smoke from fueloil burning equipment penalizes everyone from the burner manufacturer and oil producer to the ultimate consumer. Complaints regarding fuel quality multiply. Equipment honestly engineered for clean efficient performance suffers loss of reputation. Undesirable and unprofitable service problems are created. Heating costs are increased. Consumer resistance to oil heat can result.

None of these penalties of widespread inefficient combustion is necessary. With proper testing tools and sufficient knowledge of the factors responsible for smoky, inefficient combustion any oilburner can be adjusted for clean efficient operation. In some cases, routine adjustments such as properly setting combustion air and draft, sealing air leaks, nozzle cleaning or replacement, oil filter replacement, etc. are sufficient to produce clean, efficient combustion. In other cases, it may be necessary to "modernize" the installation to permit adjustment for clean combustion at an acceptable combustion efficiency (at least 75% combustion efficiency).

Excessive Smoke means Waste

Alert and progressive dealers in many communities are effectively and profitably insuring clean and efficient combustion to their customers. That sort of professional competence can hardly fail to produce greater business volume and higher profits.

First, excessive smoke is evidence of incomplete combustion of the fuel. Reliable authorities have reported up to 15% loss of fuel input due to the incomplete combustion associated with excessive smoke. While this is an extreme condition, fuel waste up to 5% is not unusual. In a general way, the amount of heat lost due to incomplete burning of fuel will be small with light smoke, and this fuel waste will increase as the smoke density increases.

Second, excessive smoke results in a rapid deposit of soot on the heat absorbing areas of the furnace or boiler. Soot insulates these surfaces, prevents proper absorption of heat and results in higher flue gas temperatures and increased heat loss to the flue. For all practical purposes it would be as sensible to cover the heat absorption surfaces with a layer of asbestos as to tolerate accumulation of soot on these surfaces. A soot deposit 1/8 inch thick can reduce heat absorption by 10%.

Add the excessive maintenance and service costs caused by excessive smoke and the inferior performance resulting, and it is easy to understand that clean combustion is a matter of substantial importance to the dealer, home owner.

Before defining excessive smoke it is necessary to have a means of measuring smoke. This measurement is accomplished by the Bacharach Smoke Tester illustrated in Figure 1. With this method a total of 2200 cubic centimeters (six full strokes of the sampling pump illustrated) of smoke laden flue products are drawn through a .38 inch square centimeter area (1/4 inch in diameter) of a standard grade filter paper. The color of the resultant smoke stain on the filter paper is matched to the closest color spot on the standard graduated smoke scale shown in Figure 1.

This scale has 10 color spots with an equal color difference between successive spots. Spot Number 0 is white and represents smoke-free combustion. Spot Number 9 (darkest) represents about the maximum smoke which will be produced by conventional design of oilburners under the worst conditions.

Both laboratory and field tests by a number of investigators have resulted in the recommendations shown in the chart. These recommendations have been established for the degree of sooting and fuel waste at various smoke densities covered by the smoke scale.

It might be well to emphasize that the recommendations shown in the

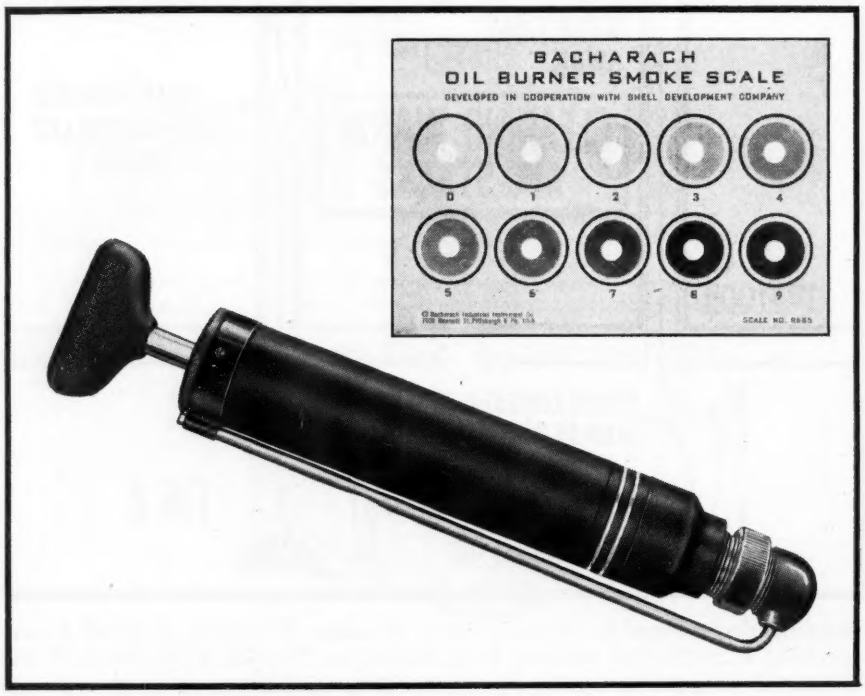


Fig. 1 — *Bacharach Smoke Tester and Smoke Scale.*

*Application service engineer, Bacharach Industrial Instrument Co.

chart have resulted from experimental testing by oil producers and burner manufacturers using the type of test previously described or the equivalent of this test. The recommendations shown in the chart cannot be used if the test method involves a different ratio of sample volume to filter paper area than that noted or where a different smoke scale than that illustrated in Figure 1 is used. It is essential that the sampling equipment delivers a uniform volume of sample from one test to another and that the connection between flue and filter paper be kept to a minimum which will cool the combustion

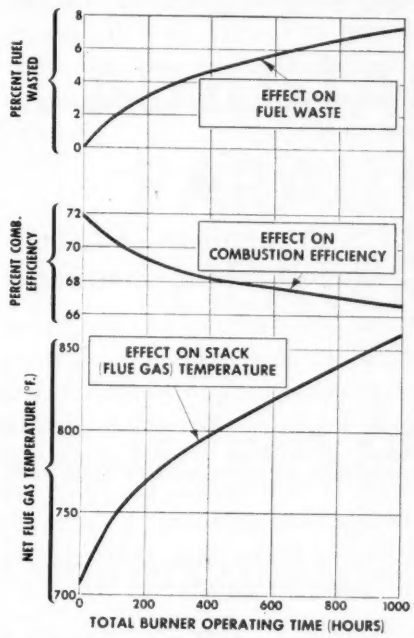
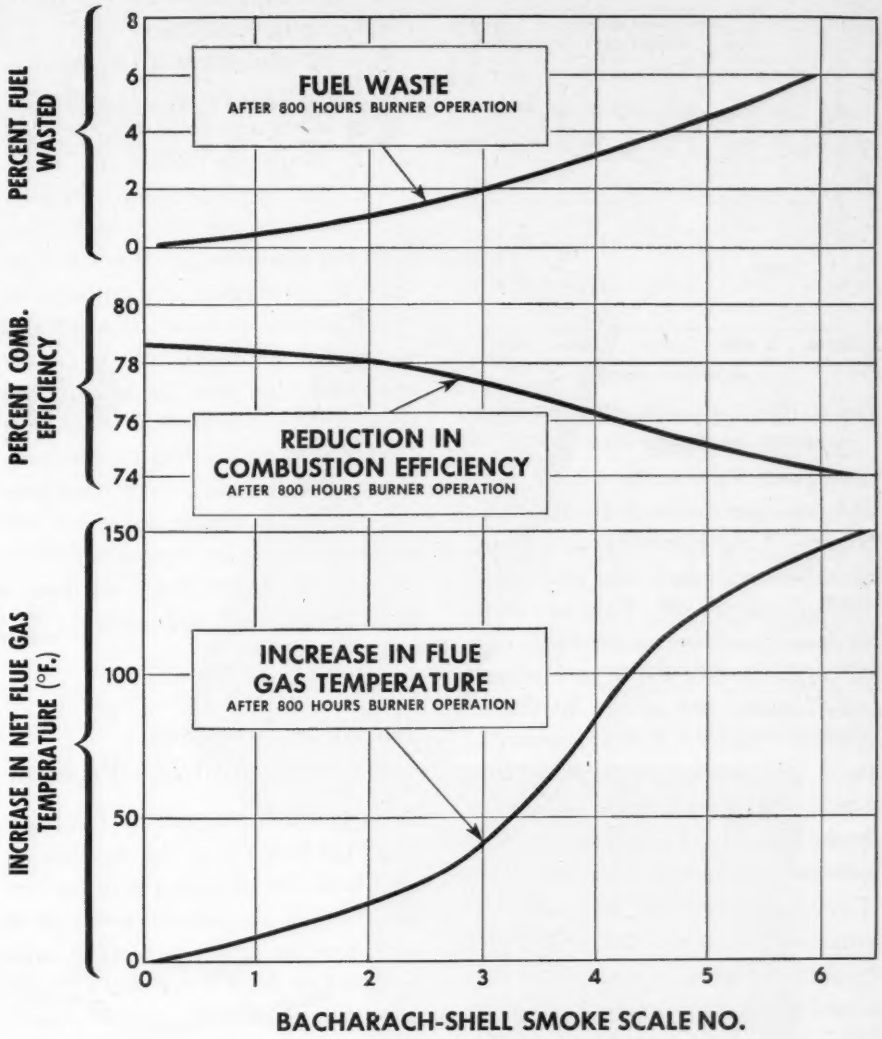

PERCENT FUEL WASTED
EFFECT ON FUEL WASTE
PERCENT COMB. EFFICIENCY
EFFECT ON COMBUSTION EFFICIENCY
NET FLUE GAS TEMPERATURE (°F.)
EFFECT ON STACK (FLUE GAS) TEMPERATURE
TOTAL BURNER OPERATING TIME (HOURS)

Fig. 2. *Effect of smoke on combustion performance during winter's heating season. (Test unit consisted of a pressure gun burner firing a forced warm air furnace at 1.35 gph, 9.5% average CO_2. Five minute smoke reading, 5.2 Bacharach-Shell Smoke Scale No.; over fire draft, 0.23"; flue draft, .029").*

products sufficiently to prevent burning or charring the filter paper. Even with the short connection illustrated in Figure 1 a very slight amount of soot drops out in the metal tubing between the filter paper and flue. If this connection is excessive in length substantial errors in measurement can result.

An illustration of the type of data which has resulted in the recommendations shown in the chart, is illustrated in Figure 2. This represents one of a number of field installations tested by Bacharach over a winter's heating season, and the results of a number of such field tests have been summarized in Figure 3. It should be emphasized that the fuel waste shown in Figure 3 is based only on the increase in flue gas temperature and resultant decrease in combustion efficiency and does not include losses due to incomplete combustion.


PERCENT FUEL WASTED
FUEL WASTE
AFTER 800 HOURS BURNER OPERATION
PERCENT COMB. EFFICIENCY
REDUCTION IN COMBUSTION EFFICIENCY
AFTER 800 HOURS BURNER OPERATION
INCREASE IN NET FLUE GAS TEMPERATURE (°F.)
INCREASE IN FLUE GAS TEMPERATURE
AFTER 800 HOURS BURNER OPERATION
BACHARACH-SHELL SMOKE SCALE NO.

10% CO_2 and 500°F. Net Stack Temperature Assumed at Start of Test

Fig. 3. *Effect of smoke on combustion performance after 800 hours burner operation.*

While the absence of smoke as indicated by the color of the smoke spot on the filter paper does prove clean combustion, it does not necessarily mean efficient combustion. As a general rule, with pressure gun burners increasing combustion air (by increased draft adjustment of barometric regulator or opening air shutter) will reduce smoke, but it will also reduce the per cent CO_2 in the flue products. It, therefore, is quite important to check CO_2, as well as the smoke in the flue products.

SMOKE SCALE READING	BURNER PERFORMANCE
1	Excellent—Little, if any, sooting of furnace or boiler surfaces.
2	Good—May be slight sooting with some types of furnace or boiler but little, if any, increase in flue gas temperature.
3	Fair—Substantial sooting with some types of furnace or boiler but rarely will require cleaning more than once a year.
4	Poor—This is a borderline smoke—some units may soot only moderately, others may soot rapidly.
5	Very Poor—Heavy sooting in all cases—may require cleaning several times during heating season.

The CO_2 reading should be 8% to 10%

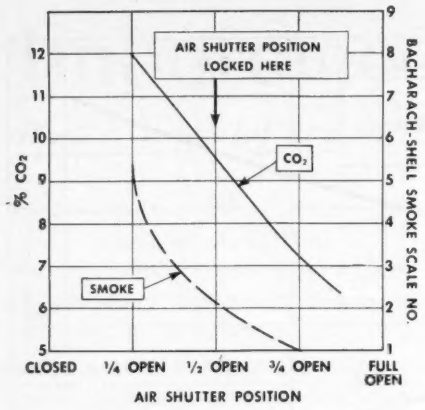


Fig. 4. *Effect of combustion air adjustment on smoke and CO_2.*

CO_2 at not over a Smoke Scale Number 3 and preferably at a Smoke Scale Number 1 or 2. The smoke scale number and per cent CO_2 at various air shutter positions for two fairly typical conditions are shown in Figures 4 and 5. In the case of the installation shown in Figure 4 it is apparent that an air shutter position can be selected which will give a 9½% CO_2 at a Smoke Scale Number 2. Adjusting such a burner installation is a simple task.

A much more difficult problem is presented by the installation illustrated by data in Figure 5. It is obvious that a combustion air adjustment for a number 3 smoke scale density will produce only a 6½% CO_2. This is not an extreme example. Cases will be found where it is impossible to obtain clean combustion even where combustion air has been set to a 4% or 5% CO_2. Obviously such a situation must be corrected, and inevitably a decision must be reached as to the steps required to obtain clean, efficient combustion, what will be the probable cost to the customer of these steps and whether it is to the dealer's interest to undertake

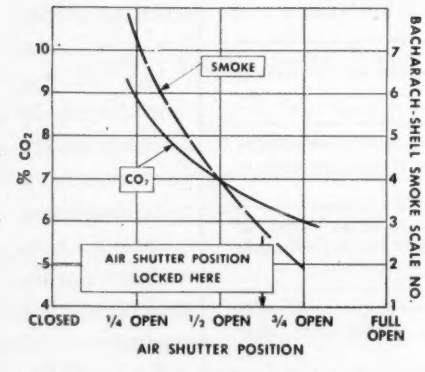


Fig. 5. *Effect of combustion air adjustment on smoke and CO_2.*

these corrective steps or attempt to sell a replacement installation.

Routine adjustment involving relatively little expense may be sufficient. On the other extreme, it may be necessary to completely rebuild and "modernize" the installation and certainly, in a certain proportion of such cases, good sound business practice would indicate the desirability of a replacement sale. Reaching such a decision requires a thorough knowledge of the factors responsible for poor combustion and these will be discussed in detail in a later installment. In all cases, it is necessary to use complete combustion testing procedures. Proper analysis of the problem is virtually impossible without the basic measurements of CO_2, flue gas temperature, draft and smoke.

❖

Buckeye proposes Eastern products Pipeline

A PROPOSAL SUBMITTED by the Buckeye Pipe Line Co. to its shareholders on March 28 outlined a plan for construction of a common carrier products pipeline between refining areas adjacent to New York and Philadelphia and consuming areas in eastern Pennsylvania and central New York State.

The project contemplates construction of a 14" line from Linden, N. J. to Allentown, Pa., to join with the new westerly extending products line of the Tuscarora Oil Co., Ltd., a wholly-owned subsidiary of Esso Standard Oil Co. An 8" line would be built from Marcus Hook, Pa. area to Allentown, a 12" line from Allentown north through the Scranton-Wilkes-Barre areas to Binghamton, Syracuse and Oswego, N. Y. and another 8" line would extend from Auburn, N. Y. to Rochester, N. Y. Total mileage of the system would be about 430 miles, with initial capacity out of Linden approximating 80,000 bbls. per day and 28,000 bbls. per day out of the Marcus Hook area.

Nine major oil companies and principal marketers are expected to use the proposed line for movement of finished products to delivery terminals along the line. In addition, certain Canadian oil companies would be expected to utilize facilities at Oswego, N. Y. The area the pipeline would serve directly and indirectly through connection with the Tuscarora system includes the most highly industrialized sections of the northeast and from estimated through-put figures it appears that of the total demand for petroleum products in the areas served directly by the proposed line, about 40% would be shipped through it.

It is estimated that the portion of the line running between Linden and Allentown would be built during the spring and early summer of 1952 and that construction of the balance of the line would be completed sometime during 1953. Pipe Line Engineering Co., Dallas, has been retained by Buckeye for planning and engineering of the project.

❖

U. S. Department of Labor Fueloil Prices (February)

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken February 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	14.73	14.57	12.50	..
Manchester	15.30	14.80	13.20	..
Portland, Me.	14.40	14.40	12.40	..
[3] Buffalo	14.95	..	13.74	13.74
[1] New York	..	..	12.63	..
Philadelphia	..	13.43	12.20	..
[1] Chicago	14.95	14.55	13.63	13.65
[4] Detroit	..	14.83	13.80	..
Milwaukee	..	14.78	13.84	13.72
[1] Kansas City	..	12.83	11.83	11.73
Minneapolis	14.97	14.73	13.68	13.73
[1] Baltimore	..	13.36	12.44	..
[1] Wash., D. C.	..	13.84	12.85	..
Jacksonville	..	14.87	13.72	..
Norfolk	..	13.60	12.20	12.20
Richmond	..	14.00	12.60	..
[2] Savannah	..	16.07	13.57	..
[5] New Orleans	..	14.33	12.77	12.77
Portland, Ore.	..	14.34	12.10	6.90
[6] San Francisco	..	13.87	11.54	6.85
[4] Seattle	..	15.41	13.20	7.11

[1] Prices include 2 percent tax.
[2] Inspection tax of one cent per gallon included on kerosene only.
[3] Prices include 1 percent tax.
[4] Prices include 3 percent tax.
[5] Prices include 3 percent tax on all fuels except gas; prices for kerosene and fueloil No. 1 also include one cent per gallon State health tax, and 1/32 of one cent per gallon State inspection tax.
[6] Prices include 3.5 percent tax on all fuels except gas.

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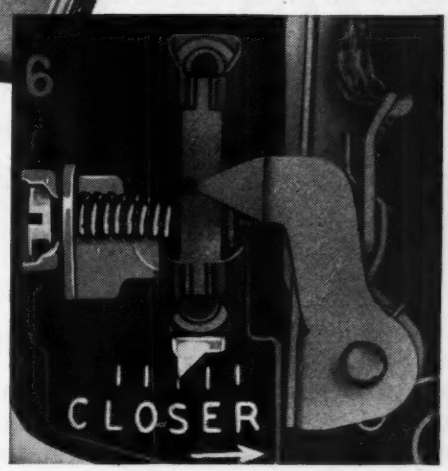

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Exhibit *of the Shore Gas and Oil Co., Inc., Oakhurst, N. J., at the April Asbury Park Cavalcade of Progress. Sanders A. Wertheim, Jr., vice president, is shown standing in the booth, which displayed Oil-O-Matic heating equipment and announced the installation of two-way radios in all Shore's fueloil trucks and service cars.*

Two-way Radio, tank Cleaner merchandises Shore Service

A DOUBLED-BARRELED CAMPAIGN to merchandise and improve services to its customers is being conducted by the Shore Gas and Oil Co., Inc., Oakhurst, N. J. The big guns in the program are two-way radio installations in all its trucks and service cars and a combination boiler or furnace vacuum cleaner and tank cleaning unit.

Sanders A. Wertheim, Jr., vice-president of the company supervises the merchandising activities, which he frankly describes as aimed at "new fueloil and oilburner sales." A local business show, "The Asbury Park Cavalcade of Progress," held during the first week in April, offered an opportunity for the company to tell its story to the 24,000 people who attended. Shore, who handles the Oil-O-Matic line and Cities Service oil, had an equipment display at the show, pictured at the top of the page.

The display carried this legend along its backwall, "Shore Gas & Oil is first in the fueloil field. All trucks equipped with two-way radio. 15 minute service! Call Shore Gas and Oil for better service." In addition, Oil-O-Matic burners and units were featured in the booth.

Wertheim also worked up a "Cavalcade Edition" of the *Shore News*, 4-page tabloid newspaper, for distribution at the show and to use in direct mail. Feature story told of the installation of the two-way radios and pointed out that the company was now able to "contact its fueloil delivery drivers and serviceman at all times. Formerly it was necessary to wait until these men called or came in to the plant. Now the dispatchers can get in touch with them immediately. This will greatly speed up delivery time and should result in 15 minute emergency service.

On the front page of the *News* was a picture of the Oakhurst plant, including two newly erected storage tanks. Addition of these tanks, with a total capacity of 300,000 gallons, brings Shore's total storage to 1,250,000 gallons. Wertheim's copy explained to customers and prospects the importance of this large storage, "A local shortage of oil could be caused only by transportation difficulties, strikes or adverse weather conditions beyond anyone's control. All these possibilities are nullified by the fact that these full tanks are right here where they can do the most good. The company does not have to worry about hazardous over-the-road or over-the-rail conditions to guarantee its customers an adequate supply at all times. Our fueloil is not coming—it's here!"

In the arcade of the exhibit hall Shore displayed its furnace vacuum cleaner and tank cleaning unit, which is mounted on a large trailer truck. The combination of the two units makes it possible to clean out a fueloil tank while the chimney or furnace cleaning job is being done. Both the vacuum and pump out unit can be operated at the same time.

The pump out unit consists of a 950 gallon tank, an Erie water separator and a filter. In operation, it pumps out the tank, drawing the oil through a fine mesh strainer and the filter to remove foreign matter. The oil then goes through the water separator, removing practically all of the free or entrained water and into the 950 gallon tank. The procedure then is reversed and the clean oil is pumped back into the customer's tank.

Meanwhile the furnace and chimney are being vacuum cleaned, so that the single service call made with the unit completes both jobs. The company recommends that the service be arranged for at least once a year, preferably in the Spring or Summer "when proper time and care can be given to the job."

Wertheim reports that response to the service has been gratifying and indicates that it will be the nucleus around which a continuing campaign will be organized.

Truck-mounted unit *which Shore uses for simultaneous boiler or furnace vacuum cleaning and tank cleaning. The tank cleaning process involves pumping out its contents through a strainer and filter, into a water separator and finally into the truck tank, which holds 950 gallons. Immediately after the tank has been emptied the clean fueloil is pumped back into the customer's basement or underground storage tank.*

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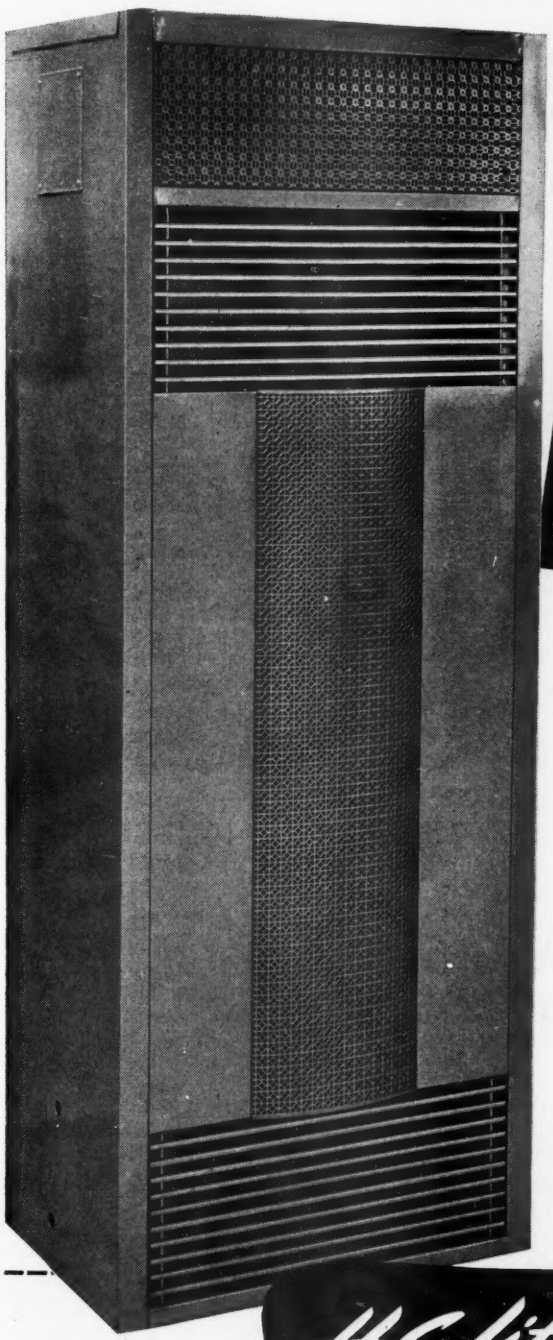

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SILENT OPERATION! *patented* H.C. Little construction has no moving parts to vibrate, make noise or interfere with radio or television reception!

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H. C. Little Oil Wall Furnace No. 85 (illus.); 65,000 BTU per hour heat output; 79″x 20″x 30″; warm air discharge and cold air intake grilles on both sides of unit; radiant panel on front of furnace; installed either side of chimney or vented by patent flue at top

H. C. Little Oil Wall Furnace No. 60 (not illus.); 42,000 BTU per hour heat output; 51⅜″x 17″x 29″; warm air discharge and cold air intake grilles on both sides of unit; installed either side of chimney or vented by patent flue

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burner servicemen

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JUST about every original, useful idea submitted will win some kind of award. There will be four First Prizes of $125 for the most useful idea submitted by each of the four kinds of employees listed. Then there will be four second prizes of $75 each and four third prizes of $50 each. All the winning ideas will be published in FUELOIL & OIL HEAT, identified with the winner's name. BUT, in addition to the 12 prize awards determined by the judges, there will be other papers that have worthwhile suggestions that would help the oilheating industry. The editor will select a number of these and when they appear in the magazine the author will be paid at the rate of 3¢ a word.

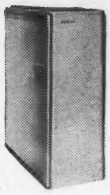
1. The idea that you think would be useful to other oilheating men may be one of your own experiences or anything unique that you have learned.
2. To be eligible you must be an employee, not the boss, and you must be working in some part of the oilheating industry.
3. Write your idea in enough detail to make it clear to every one in any number of words up to 1,000. If a picture or a rough sketch or drawing would help make your points clear, include them. DON'T WORRY about your ability to write well. It will be the idea itself that will get attention if it is useful.
4. Your suggestion should be typewritten if possible, on one side of the sheets. Do not put your name on any of the sheets, as the judges must not know who sent in the idea. All entries will simply be numbered. So write your name and address on a separate slip of paper and clip it to your story. Thus winners can later be identified by the editor after the judges announce their choices. Entrants may send in as many suggestions as they want to, but they must be written separately.
5. State whether your entry is sent by an oilburner salesman, burner service man, fueloil truck driver or office employee, since the prizes will be awarded to those four separate classifications. Office employees include dispatchers, degree-day operators, credit and collection workers, and others.
6. The Contest closes August 31, 1951, and winners will be announced in the October issue of FUELOIL & OIL HEAT. All opinions of the judges will be final, and no entries will be returned to the senders.
7. To be eligible entries must be postmarked not later than midnight August 31, 1951.

THE JUDGES

The three judges are men of responsibility in the oilheating industry today . . . men who started at the bottom and came up in their organizations. They have all had experience in about every phase of oilheating dealers organizations and know a good suggestion when they see it. The judges again will be:

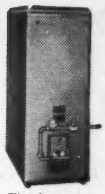
Tom Carson, manager oilheating division, Sherwood Bros. Inc., Baltimore, Md.
George Clement, general manager, Modern Heat & Fuel Co., Philadelphia, Pa.
Herbert Spade, manager oilheating division, E. Robison, Inc., Hartsdale, N. Y.

Send all entries to Editor, FUELOIL & OIL HEAT
232 Madison Ave., New York 16, N. Y.

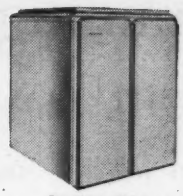


Series A
Gas-Fired Steel
Air Conditioning Unit.

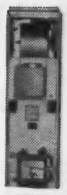
Series H
Gas-Fired,
Steel Utility
Air Conditioning Unit.



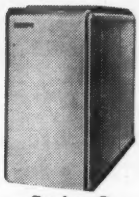
Series G
Gas-Fired
Gravity Furnace
Available with
Steel or Cast Iron
Heating Element.



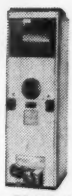
Series CA
Gas-Fired
Air Conditioning Unit,
Cast Iron heating
element.



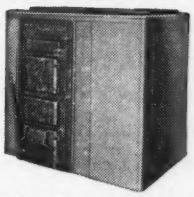
No. HC-95-E
Gas Counterflow Unit, for
Slab Floor,
Perimeter
Heating.



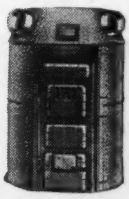
Series O
Gun, Oil-Fired
Air Conditioning
Unit. Steel
heating element.



No. VHC-75-E
Oil Counterflow Unit, for
Slab Floor,
Perimeter Heating.



Series AC-F
Coal-Fired Air
Conditioning Unit.
Steel Heating Element.



Series No. 600
Coal-Fired
Gravity Furnace.
Steel heating element.

Series C
Coal-Fired,
Cast Iron
Furnace.

Far MORE Sales!

Far LESS Inventory!

Far MORE Dollar Profits!

Are YOURS when you sell THE COMPLETE

Luxaire

LINE OF HEATING UNITS

A SIZE for ANY order
A TYPE for ANY order

And—they all mean—
—Far MORE Sales!!
—Far LESS Inventory!!
—Far MORE Dollar Profits!!

for you because—you are selling the line of heating equipment that is overwhelmingly accepted by home-owner, builder, and architect.

With Luxaire you sell the line of heating equipment that has all the advanced features in design, performance and customer preference.

No matter what the order—gas, oil or coal—gravity or forced air—a steel or cast iron heating element—you can fill that order with a Luxaire because your Luxaire wholesaler has a complete and adequate stock.

Have a talk with your Luxaire jobber. Learn the Luxaire preference story!!

THE C. A. OLSEN MANUFACTURING COMPANY • • ELYRIA, OHIO

Luxaire HEATING & AIR CONDITIONING UNITS

fueloil oilheat

Coleman training Program to extend over five Years

A TOTAL OF 8,000 dealers will be trained at an estimated cost of two million dollars in a program begun three months ago by the Coleman Co., Wichita, Kansas. The company and 67 wholesale distributors are sponsoring the schedule, which calls for 40 dealers to spend five days at the factory each week for 40 weeks a year for the next five years.

The selection of dealers who will participate is left to individual distributors, with the full cost of the program underwritten by the manufacturer and its distributor organization.

Insofar as possible, each class is to consist of a group of dealers from a single territory, with the program prepared so that it is flexible enough to concentrate on problems that are common to individual areas. Main emphasis is placed upon instruction and demonstration of the basic principles of operation, installation and maintenance of Coleman heating equipment, as applied to field use.

The program, which is described as a combination factory visit, vacation, installation and service school and sales clinic, includes a showing of the complete line of Coleman gas and oilfired heating appliances and a preview of new products still in the design and testing stage. A tour of the two Wichita factories takes place on the first day.

Activity during the next three days centers in the classrooms and laboratories of the Coleman Heating Institute. Studied during the intensive schedule are fundamentals of home heating, encompassing a review of house construction, insulation, heat loss calculation, heating layout and special installation problems.

The fifth and final day of each session is devoted to sales training, sales promotion and national advertising.

Floor furnaces, wall heaters, water heaters and Blend-Air, pre-engineered heating and ventilating system, are covered by a staff of 20 instructors and technical assistants. Two schools run simultaneously, with classes split into groups of 20 men.

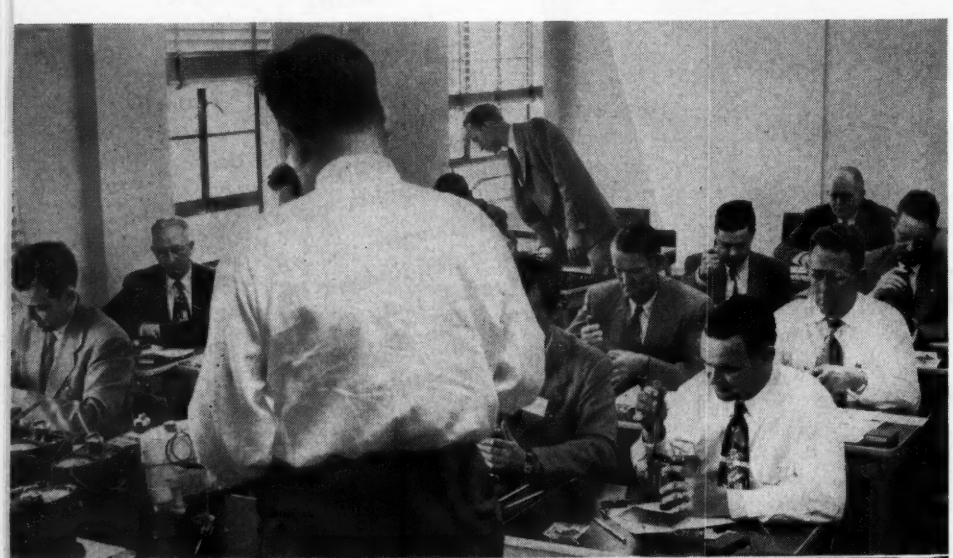
A group *of dealer-students adjusting the blower on an oilfired warm air furnace.*

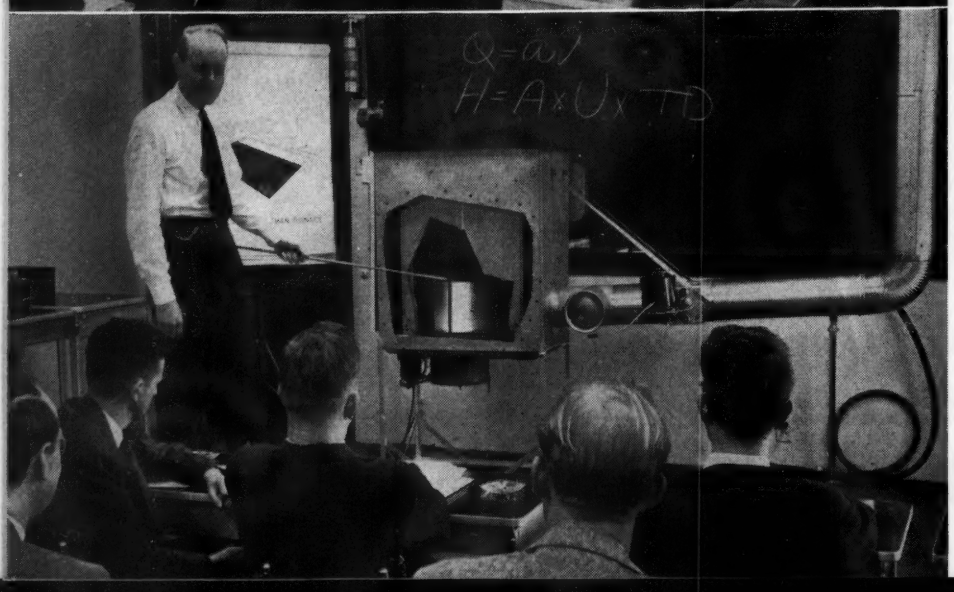
Each distributor works out ways for awarding scholarships to fit conditions in his territory, so that some dealers will be picked on the basis of sales volume, while others may be rewarded for an over-all improvement in sales, displays, advertising and service.

C. L. Burrows, national sales manager, is in charge of the program, aided by L. M. Marks, assistant national sales manager in charge of the home heating division; J. D. Eckles, national service manager and director of the Coleman Institute and A. W. Boyer, advertising manager.

The present plan, described by Mr. Burrows as "one of the most ambitious undertakings in the 50-year history of The Coleman Company."

One important phase of the program currently aims at instructing the dealers in all possible phases of the details of Coleman equipment, its installation and maintenance. This is particularly helpful in equipping the dealers to undertake the intelligent and convincing selling program which the company feels must be done this year to insure a satisfactory sales volume.



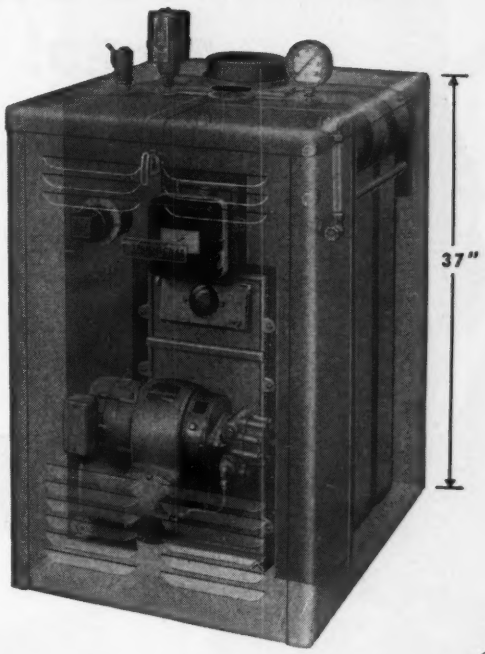


Top: *Instructor Don Magliano, back to camera, supervises a class taking apart and re-assembling vaporizing burner oil valves.*

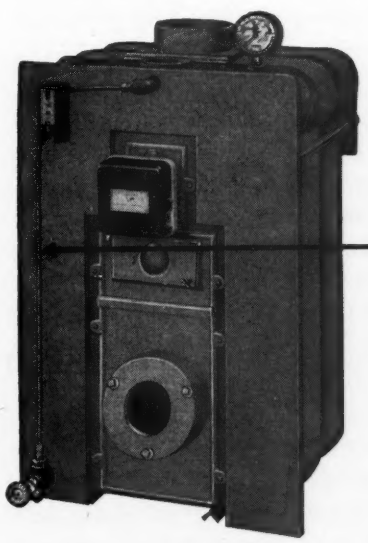
Bottom: *A cut-a-way oil floor furnace, with heat resistant glass in the casing and radiator, is used by Instructor E. G. Johnson to demonstrate draft.*

Burns oil better because it's made only for oil . . .

SERIES C



PHANTOM VIEW STEAM BOILER



WATER BOILER — JACKET REMOVED

Amazing Econoloop changes temperature of water in radiators to suit outdoor conditions — causes longer circulator operation — more uniform heating — protects domestic water supply.

I=B=R RATED

CAPACITY RANGE:
74,000 BTU to 160,000 BTU per hour

OIL ECONOMY® BOILER
—*with amazing* Econoloop®

Skilled INTERNATIONAL heating engineers have put *every* known and proven feature into this Series C Boiler for just *one* purpose—*to burn oil economically!* It's one of the smallest oil burning units in size — yet it is far superior in heat output to many larger, bulkier boilers. Cast iron for strength and durability, the Series C includes a pre-formed firing chamber, wet bottom, built-in domestic hot water heater, factory assembled sections, glass wool insulation on five sides—and the exclusive Econoloop for forced hot water systems. Complete with burner, controls, accessories and enameled steel jacket . . . it's the *modern* answer for every home where *comfort* and *economy* are vital. See the "C"—see why INTERNATIONAL says: "It's the best oil heat buy!"

See the "C" at your jobber's — or write

INTERNATIONAL HEATER COMPANY

UTICA 2, N.Y.

WESTERN OFFICE AND WAREHOUSE • 1933 WENTWORTH AVENUE, CHICAGO, ILLINOIS

fuel oil oil heat

LOOK! HERE'S THE FLEXIBLE ELEMENT CONTROL WE'VE ALWAYS WANTED!
RIGHT! AND IT'S A HONEYWELL DEVELOPMENT-JUST AS YOU'D EXPECT!
MINNEAPOLIS
Honeywell
First in Controls

Ceiling Price Regulation Covers sales of Fueloil

CEILING PRICE REGULATION 17, which became effective on April 10, 1951, has been issued by the Office of Price Stabilization. The regulation "covers sales at all distribution levels, except service station sales at retail, for the principal products of the petroleum industry, including . . . residual and distillate fueloils."

It establishes a seller's ceiling price for a petroleum product at the highest price charged by him to a purchaser of the same class for a product during the period December 19, 1950 and January 25, 1951, inclusive. "Where a seller has no price based on an actual sale during the base period, his ceiling price is predicated upon his highest offering price during the base period to a purchaser of the same class."

Basically, Regulation 17 is the same as the General Ceiling Price Regulation, with provision for adjustment of individual seller's prices, as follows:

"(1) Where a seller's ceiling price is inconsistent with his customary price practice or price relationship to other sellers, or his ceiling prices are not in their customary relationship to other prices in his market area due to temporary conditions;

"(2) Where a seller demonstrates that an existing ceiling price threatens a local shortage in the supply of a petroleum product and such shortage can be alleviated consistent with the purposes of the Defense Production Act of 1950; and

"(3) In connection with government contracts, where a seller believes that his ceiling price impedes the defense program."

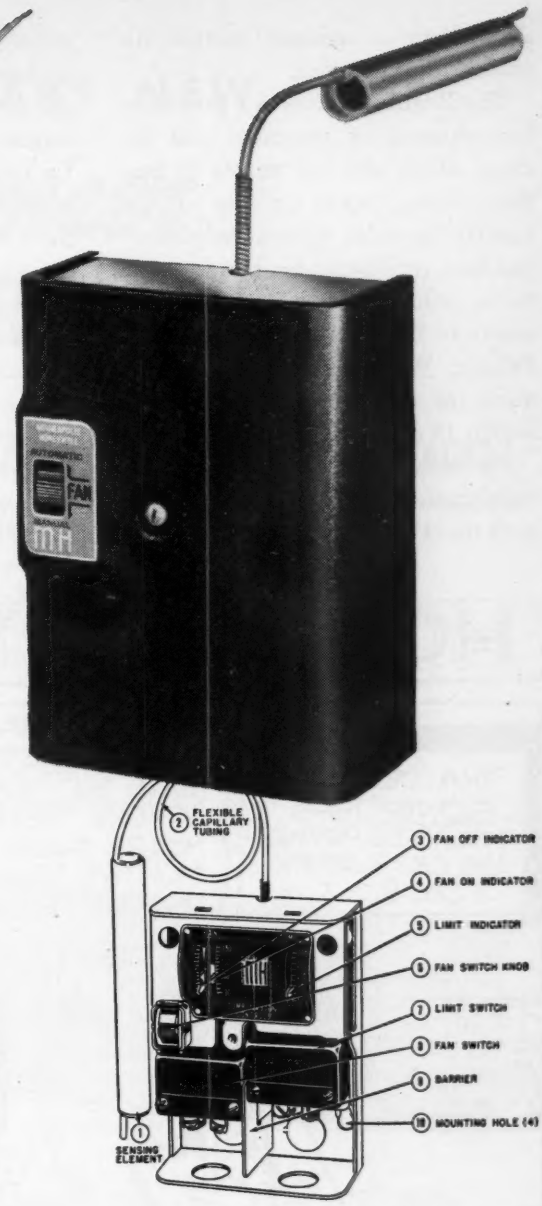
Increases in ceiling prices are permitted to represent added costs of transportation that have occurred since January 25 and have been authorized by Federal or State regulatory bodies or by OPS. Also, increases in taxes, which sellers are required by law to collect and pay, may be added, and if the seller owns his own transportation facilities, he may add to ceiling prices an amount equal to duly authorized increases in tariffs that are

Announcing the New Honeywell

L486 Combination Furnace Control

with Single Flexible Unit

NEVER BEFORE A FLEXIBLE ELEMENT CONTROL LIKE THIS!

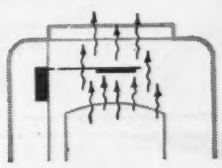


Yes, this new L486 is the only flexible element control that has a fail-safe feature. It does what no other control of its kind will do. It will break the circuit to the burner and start the fan if the single flexible element should ever rupture for any reason. This gives *positive* furnace protection, *positive* elimination of fire hazard. Thermostatically compensated for ambient temperature changes so switching action is sure and uniform.

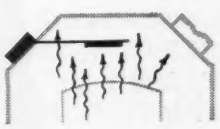
Mounts in any position. The L486 can be mounted wherever it's most convenient and no leveling is required—yet you can always place the single element in the most effective plenum position. This means the L486 can be *factory-mounted* inside the furnace casing, permitting the heating plant to be shipped as an integral, ready-to-install unit. Capillary lengths from 10 to 60 inches make possible a wide variety of remote installations. Capillary can be extended vertically or horizontally from case.

Easily accessible summer-winter switch and many other features are additional good reasons why you should use this better, safer control. For all the facts, get the new illustrated folder now. Call your local Minneapolis-Honeywell office. Or write Minneapolis-Honeywell, Dept. FH-5-88, Minneapolis 8, Minnesota.

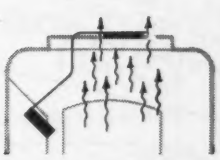
Made to be mounted ANYWHERE



Inside casing



Outside casing



Remotely

MINNEAPOLIS
Honeywell

First in Controls

allowed to a common carrier for similar transportation.

The Regulation contains provisions for adjusting of inequities and for those sellers who are unable to base their ceiling prices on any of the normal formulas quoted, machinery has been established for him to apply for a ceiling price before making a sale or to file with the OPS, Petroleum Branch, Washington, a written request for approval of a ceiling price within 15 days after the sale.

As issued by the OPS, the pricing regulations are practically identical with the tentative rules announced last month, except that they exclude the provision to permit a seller to adopt the prices of the "representative tank wagon seller," as designated by OPA for each area. It is believed that OPS yielded on this point to objections of the Department of Justice's anti-trust division.

The Petroleum Price Branch of OPS is planning to spell out actual prices on fueloil in the principal markets of the country, as time and manpower will permit. A start on this is being made in the Boston area, through the regional OPS office. This will later spread throughout New England.

HOW ABOUT THAT ?
THADDEUS IS SLOWER THAN MOLASSES PAYING HIS OIL-BURNER FUEL BILL!
THE BOSS WANTS MONEY! WE SEND BILLS BUT YOU IGNORE THEM! YOU'RE THREE MONTH'S BEHIND ON YOUR PAYMENTS!
AW... IT'S JUST AN OVERSIGHT! MY CREDIT'S GOOD AS GOLD! TELL YOUR BOSS I'LL SEND A CHECK TOMORROW!
FUEL OIL
BUT.... WHEN THADDEUS ORDERS OIL.... WOW! DOES HE DEMAND INSTANTANEOUS SERVICE!
SORRY.... I'M A HALF HOUR LATE! I WAS DELAYED BY TRAFFIC!
THAT'S NO EXCUSE! I ORDERED THE OIL TWO HOURS AGO! IS THAT THE WAY TO TREAT A GOOD CUSTOMER? HAVE YOU PEOPLE NO CONSIDERATION? IF I DON'T GET FASTER SERVICE HENCEFORTH I'LL BUY MY OIL SOMEWHERE ELSE!
FUEL OIL
SEND IN YOUR CARTOON IDEA FOR ILLUSTRATION HERE! YOU'LL RECEIVE CREDIT AND THE ORIGINAL DRAWING!

NPA's DO-97 Rating not for home Repairs

REGULATION 4 of the National Production Authority, which permits a DO-97 rating for maintenance and repair parts, cannot be used by the dealer to get burner repair parts from his factory supply source.

This is the most recent interpretation by the lawyers of the Administration. When the order first came out officials in two Government agencies had taken the position that while the rating would not apply on the individual pump or motor needed by an oil-burner user it could be used by the dealer for larger bulk purchases to replenish his own stocks.

The later interpretation forbids using the rating in this way.

The new Controlled Materials Plan to become effective July 1 carries a provision for the manufacturer to include repair parts in his needs for basic raw materials. With oilburners listed by CMP as essential, this will apparently cover our industry's needs.

❖

Revised aluminum Order Brings some Duct Relief

ON APRIL 20 the National Production Authority issued a revision of the Aluminum Order, M-7, which permits dealers to use more of the material for ducts than previously intended.

Originally the manufacture of such ducts was to stop April 30 and the dealer could make installations until June 30.

The revised order permits manufacturers to produce ducts during the months of May and June at the rate of 50% of those produced in the 1950 base period. Assuming these are prefabricated ducts that the dealer buys complete from a manufacturer, there is now no time limit placed on when he may install all that he has or can get.

If, on the other hand, the dealer has his own sheet metal shop and makes all of his own ducts from sheet aluminum this would appear to place him in the category of a manufacturer of ducts. In that instance, he is permitted to install in the third quarter of the year any of his May and June production.

THE REVOLUTIONARY NEW

Combustioneer®

LOW PRESSURE⊙ OIL BURNER

EXCLUSIVE Combustioneer ADVANTAGES!

- "A flip of the finger" selects required oil capacity from .65 to 3.0 GPH with burner operating.
- No pistons to change.
- No pumps to add or change.
- Secondary air, and oil capacity adjustable while burner is running.
- No lift pump required for outside tank installations.
- No special high speed motor—standard motor used.
- Simple full floating, hydraulically operated piston—no linkage to wear.
- Interchangeable from low to high, or high to low pressure.

MODEL d LP⊙

15 YEAR NOZZLE GUARANTEE

Clog-proof nozzle. Nozzle opening is 30 to 40 times larger than any h.p. nozzles.

The amazingly different **Combustioneer d LP** (low pressure) oil burner has a capacity range from .65 to 3.0 gph. Features a completely new hydraulically operated compound air and oil metering pump with one moving part—*utilizing a free floating piston which floats in a bath of oil.* Operates equally well with inside, outside, or single or double line tank installations—*no extra pump or parts need to be added.* Two hydraulically operated safety shut off valves—*one for the nozzle, the other for the tank.* No other oil burner has *Triple Velocity Visorhead**—three velocity carburetion. Underwriters' Laboratories approved to burn all *domestic fuel oils.*

When you sell Combustioneer products, you offer unmatched quality and dependability, at a competitive price.

Excellent dealer franchises are still available. Write for full information.

WE HAVE OPENINGS FOR TOP-NOTCH TERRITORY SALES MANAGERS!

MANUFACTURERS OF BETTER HEATING EQUIPMENT SINCE 1928

Combustioneer GAS BURNERS, HIGH AND LOW PRESSURE OIL BURNERS, STOKERS, COAL-GAS-OIL FURNACES, AND HUMIDIFIERS

TVV*

- High velocity air above nozzle, deflected downward by visorhead.
- Swirling velocity around nozzle thoroughly intermixes oil with air.
- Low velocity below nozzle permits downward deflection.

Combustioneer DIVISION
THE STEEL PRODUCTS ENGINEERING COMPANY
SPRINGFIELD, OHIO

CLIP AND MAIL TODAY!

Combustioneer DIVISION
The Steel Products Engineering Company
1241 West Columbia Street, Springfield, Ohio

Please send me information about a **Combustioneer** Franchise.

Name_____

Firm Name_____

Street Address_____

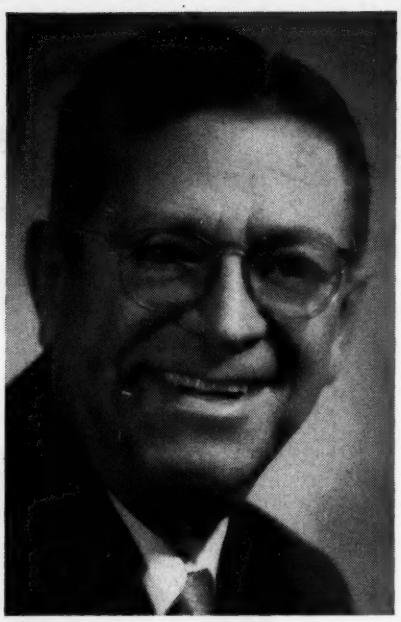
City_____ Zone____ State_____

Harold Chapler honored By Honeywell Associates

BEFORE DEPARTING for a leave of absence in California, Harold Chapler, manager of oilheating control sales for Minneapolis - Honeywell Regulator Co., was honored at a send-off dinner by his associates in the company. More than 150 Honeywell close employee friends who had worked with him for 20 years or longer gathered for a cocktail party and dinner.

The affair was planned as a total surprise to Chapler and he learned of it only as he was checking out for the evening. The hotel was decorated by the "Committee for More Chaplers." The dinner menu was in Chapler theme, with Solenoid Salad, Limit Cont Rolls, Aquaspuds, and the like.

After the dinner a five-act skit, complete with sound, props and narration, depicted a few highlights of Chap's life with Honeywell. The skit was kept in a humorous vein, and covered his being hired, calling on a rough customer, directing shipments of equipment, requesting a leave, and relaxing in California.



Chapler

As a finale, A. H. Lockrae presented to Chap a beautiful diamond ring and to his wife a fine watch, together with a leather scroll containing the names of 300 friends in the company who had participated in the gift.

❖

Name Personnel on four NPA Industry Committees

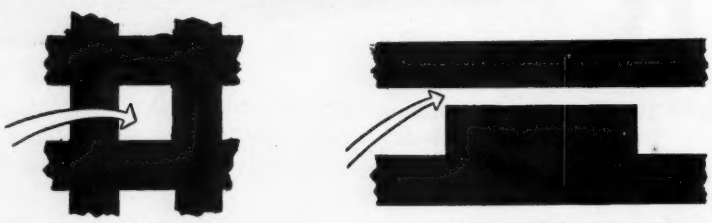
THE NAMES OF THE MEMBERS of four of the industry advisory committees that are working with the National Production Authority have been released by the Heating Branch, Building Materials Division, Facilities and Construction Bureau. The committees represent their industries in dealing with the NPA on securing adequate supplies, conservation of critical material and similar matters.

The Warm Air Heating Industry Advisory Committee includes the following: Charles H. Frank, American Furnace Co.; D. D. Couch, American Radiator Co.; P. W. Scott, Affiliated Gas Equipment Co.; David Parrett, Jackson & Church Co.; Gordon Rieley, Lennox Furnace Co.; K. F. Triggs, The Majestic Co.; F. J. Nunlist, L. J. Mueller Furnace Co.; E. P. Hayes, C. A. Olsen Mfg. Co.; Russell M. Cook, Thatcher Furnace Co.; Harry G. Cross, Waterman-Waterbury, Inc.; W. L. McGrath, William-

WHY HALLY FILTERS PREVENT NOZZLE CLOGGING

Openings between discs in a Hally Filter are actually one-half to one-fourth the size of the openings in the strainers they replace.

HERE'S VISUAL PROOF . . .



Opening in 200 mesh strainer enlarged 100 times.

Opening between Hally Filter discs enlarged 100 times.

ARROWS INDICATE OIL FLOW

You can SEE why Hally Filters will stop all impurities that may clog nozzles.

DELAVAN CAN NOW SUPPLY NOZZLES WITH HALLY FILTERS ATTACHED

Hally Filters Available For All Makes Of Smaller Capacity Nozzles—10 of one size per box.

WRITE FOR BULLETIN #551

DELAVAN MANUFACTURING CO.

3009 SIXTH AVE., DES MOINES 13, IOWA

OHI

KEY-PIECE

IN YOUR PROFIT PICTURE...

SILENT GLOW INVADER

What's the missing part of *your* profit picture? Coast to coast profit-minded dealers know from their own experience how well Silent Glow's INVADER fits into their business planning . . . helps boost sagging sales . . . and profits. Easier to sell, easier to service, easier to buy . . . INVADER offers cost-conscious buyers quality and performance unmatched by any other oil burner — regardless of price. If you are interested in profits... find out more about INVADER. Mail coupon today.

Those Who Know Choose SILENT GLOW OIL BURNERS

MAIL COUPON TODAY

TO: THE SILENT GLOW OIL BURNER CORP
850 Windsor Street, • • • Hartford 5, Conn
1500 So. Western Avenue • • • Chicago 8, Illinois

Please send the complete "INVADER" story, including prices and money-back guarantee.

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE _____

son Heater Co.; Atlee Wise, Wise Furnace Co.; H. F. Brundage, Brundage Co.; T. I. Byrd, Lau Blower Co.; Willard F. Kiesner, Midco Register Corp.; C. J. Pearson, U. S. Register Co.; Fred J. Stewart, Stewart Mfg. Co.; J. A. Corbman, Adelta Mfg. Co.; Peter Phriem, Clayton & Lambert Mfg. Co.; E. A. Eichenberger, F. Meyer Bros. Co. and H. Weyenberg, Holland Furnace Co.

Membership of the Cast Iron Boiler and Radiator Industry Advisory Committee consists of: V. A. Good, Burnham Corp.; J. A. Dwyer, Crane Co.; A. F. Westerfield, U. S. Radiator Corp.; E. R. Westphal, Weil-McLain Co.; L. P. Chase, Kohler Co.; Philip Scott, Affiliated Gas Equipment Co.

Eleven members have accepted appointment to the Steel Heating Boiler Industry Advisory Committee. They are: J. C. Trefts, Jr., Farrar & Trefts, Inc.; James Legg, Federal Boiler Co., Inc.; Paul K. Addams, Fitzgibbons Boiler Co., Inc.; J. F. Johnston, Johnston Bros.; E. M. Palmer, Kewanee Boiler Corp.; H. H. Peek, Jr., Lookout Boiler & Mfg. Co.; L. N. Hunter, National Radiator Co.; H. B. Steggall, Pacific Steel Boiler Div.; T. S. Cliff, Terre Haute Boiler Works; J. E. Kingsley, The International Boiler Works Co. and L. H. Brenneman, York-Shipley Co.

A committee, representing the Extended Surface Heating Equipment Industry, also has met with NPA officials on proposals for an amendment to the basic copper conservation order to permit continued manufacture of copper fins for heating and ventilating equipment. Members of this advisory group are: M. Noble, Aerofin Corp.; Richard H. Nelson, Herman Nelson Div.; C. W. Little, Fedders-Quiggan Corp.; A. G. Dixon, Modine Mfg. Co.; Albert J. Nesbitt, John J. Nesbitt, Inc.; H. Blake Thomas, McQuay, Inc.; J. E. Reed, Sterling Radiator Co.; Wayne Hood, The Trane Co.; J. H. Smart, Tuttle & Bailey, Inc.; T. L. Arnold, Vulcan Radiator Co.; H. S. Wheller, L. J. Wing Mfg. Co. and W. G. Schlichting, Young Radiator Co.

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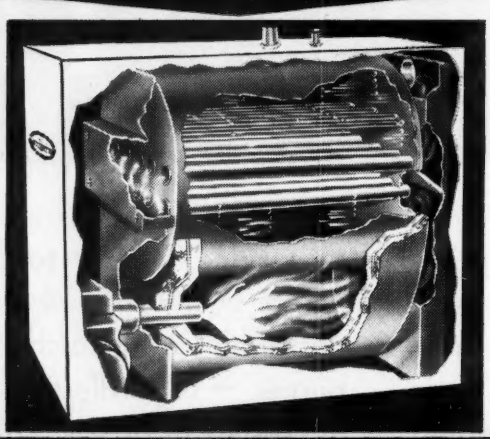
Gibraltar

SEE the difference!



The Value-Packed Boiler... designed exclusively for Domestic Heating

Installed by the country's leading contractors!

Our boilers are designed and built to comply with the regulations of the A.S.M.E. code, and we are authorized to apply the appropriate code symbols.

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Urges multi-fuel Burners for Industry

WILLIAM H. DECKER, assistant chief combustion engineer, Sinclair Refining Co., at the spring meeting of The American Society of Mechanical Engineers, held at Atlanta, Ga., urged users of industrial steam generating equipment to turn to multi-fuel burners as a means of achieving maximum economy and flexibility of operation in the face of uncertainties of fuel costs and availability.

He said the installation of multi-fuel burners, capable of burning any fuel, solid, liquid or gaseous, either alone or in combination would make manufacturing units served by such equipment "practically independent of the effect of strikes, shortages caused by a state of national emergency or war." Fuel costs average 85 to 90% of the total costs of steam or energy produced, he declared, and in the vast majority of cases the savings effected by switching fuels to take advantage of favorable prices more than pays for the multi-fuel burners.

By the year or by the mile, you're "driving bargains"

when you

Haul with HEIL!

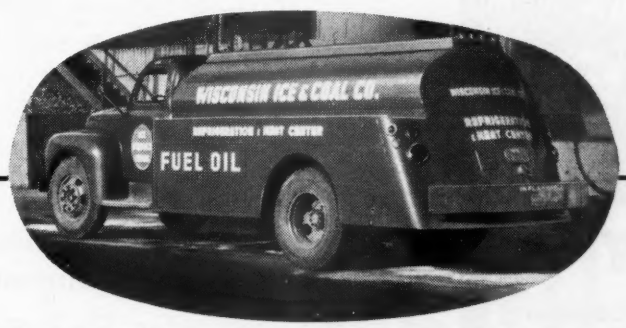
The first-cost of a petroleum tank is a small factor compared with its sustained earning power

It's not what you pay for a tank, but what you get for what you pay that makes the difference between price-tag tinsel and a profit-making value. It's the long-run economy, the lower cost of use per year, that makes Heil tanks the choice of experienced marketers everywhere.

Naturally, it costs more to build a tank with Heil quality features. But if they aren't in the tank when you buy it, *you'll pay for them later anyway* — in operating expense, lost time, shorter life.

Heil tanks are built up to a standard — not down to a price. There is no compromising with quality — no leaning on laurels. That's why they have a lot of tomorrow built right in — why their sustained earning power has made them the most wanted tanks — why you can divide their price tag by more years of dependable service and haul with Heil for less!

There can be no more convincing proof of the profit-making performance of Heil tanks than the fact that *three out of every four sales of Heil tanks are repeat sales to satisfied users.* And almost every major oil marketer in the world is using Heil tanks.

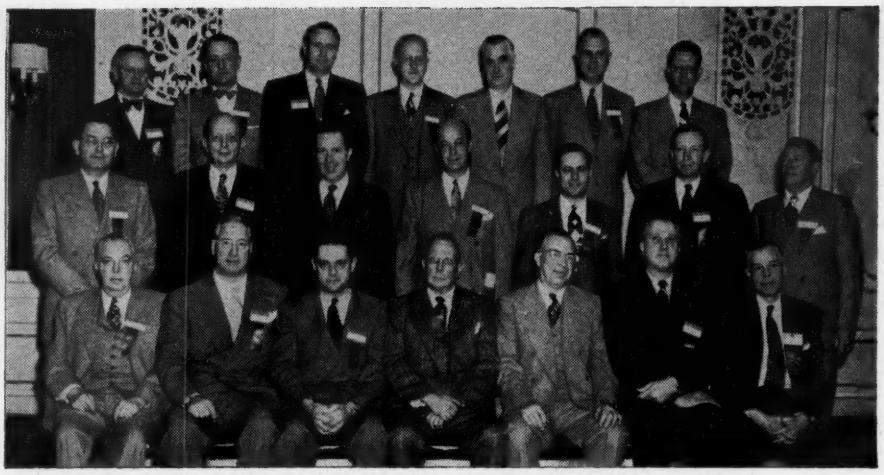


THE HEIL CO.

DEPT. 3951, 3039 WEST MONTANA STREET, MILWAUKEE 1, WISCONSIN
Factories: Milwaukee — Hillside, N. J.
District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

T-278

"TRAILERIZED" PETROLEUM TANKS • FUEL OIL TRUCK TANKS



Directors *of the Oil-Heat Institute of America, pictured during the annual meeting and National Oil Heat Exposition, Chicago, April 2 to 6. Top row (left to right): W. F. Klockau; J. H. B. Albert*, National chairman, Distribution Division; W. J. Smith, Jr.; F. N. Beckwith; J. A. Collins; C. T. Burg and G. H. Wolf.*

Center row (left to right): C. A. Potts; R. S. Bohn; V. P. Black (alternate for C. E. Lewis); R. J. Thompson; G. M. Marin; Robert Gray and J. W. Owens*.*

Bottom row (left to right): C. R. Collins; L. A. Casler; H. H. Wilkinson*, vice-president; A. T. Atwill*; T. A. Crawford*, president; P. K. Addams*, vice-president and R. H. L. Becker, managing director.*

Not present when picture was taken: H. M. Brundage; C. S. Dieter; A. C. Freimann; G. E. Hochstein; B. F. Olson; S. A. Loeb; D. G. Leslie*, national chairman, Accessory Division; S. Partridge and W. F. Schierholz.*

(—Indicates member of Executive Committee.)*

GAS
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CENTURY'S
44 UNITS
Can make money for you every day!
★ The dealer who sells from a complete line of Automatic Gas / Oil Heating Equipment closes more sales .... makes more money!
★ Write today! Some choice territories are open — let us tell you how you can build greater profits with an exclusive CENTURY franchise.
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ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA
OIL
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CENTURY
The Finest in Automatic Heating Equipment

❖

Connecticut oil Company Fined for polluting River

THE BALLARD OIL CO., Wethersfield, Conn., has been fined $1,500 for polluting the Connecticut River with 6,700 barrels of oil last summer. Federal Judge Carroll C. Hincks imposed the fine after a court trial had developed that a 10″ pipe valve had been left open, permitting the oil to escape.

A state water commission engineer testified that the oil polluted the river for three miles and that its effects were felt for more than three months. The company, on the other hand, contended that the statute under which it was being tried, prohibited the deposit of refuse matter or matter impeding navigation on the river and claimed that such was not the case with oil. Judge Hincks overruled the objections and imposed the fine.

❖

Surveys buying Intentions In Dakotas and Minnesota

SURVEYS, conducted by *The Farmer*, a magazine circulated among Upper

men who know heating say...

"During our 29 years of experience in installation and service of heating and air conditioning equipment, we have found Penn Controls to give excellent performance."

— T. H. Mabley
Mechanical Heat & Cold, Inc.
Detroit, Mich.

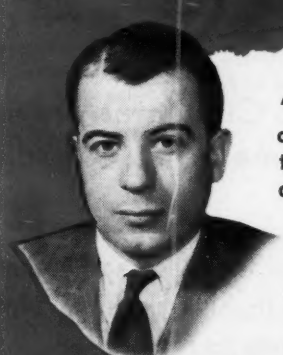
These three men join many other well-known heating experts in putting their "stamp of approval" on PENN Controls . . . approval earned by outstanding *performance on the job!*

It is this kind of "performance plus" that reduces service calls . . . wins and maintains customer satisfaction . . . and increases sales and profits for you. On your next heating job, try PENN! You'll be convinced they're "tops" on systems of every type with every kind of fuel. Remember . . . for 17 years, PENN *heat-anticipating* thermostats have proved their ability to control room temperature more closely . . . to compensate automatically for outside weather changes . . . to provide healthful heating comfort by eliminating HOT-n-COLD LIVING.

Don't settle for less. Use PENN Controls on your next heating job. **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

"We use Penn Controls because they keep our service at a minimum. The Penn Exchange Plan minimizes inventory and speeds billing."

— Campbell J. Graf
Graf & Sons, Inc.
Columbus, Ohio

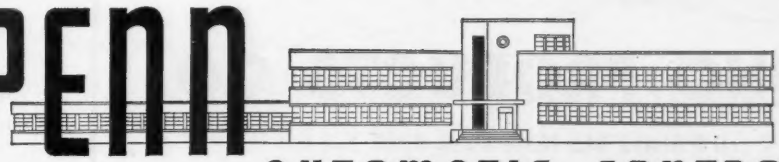


"We have always considered Penn Controls tops in service and dependability."

— N. M. James, Jr.
James & Roach, Inc.
Detroit, Mich.

NATIONALLY ADVERTISED IN BETTER HOMES & GARDENS AMERICAN HOME NEWSWEEK

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

fuel oil & oil heat

Midwest farmers, were made of the 1951 buying intentions of farm families in Minnesota and North and South Dakota. A total of 1,500 questionnaires were circulated in each area, asking what building the farmers planned to do this year and what equipment they intended to buy. Replies from the questionnaires then were projected to arrive at a total for the 188,952 farmers in Minnesota and the 138,225 in the Dakotas.

In Minnesota 8,692 farmers say they intend to purchase an oilburner for central heating this year and 7,180 plan to buy an oilfired room or space heater. Also, 2,645 will buy oilfired water heaters for their houses and 2,078 oilfired units to provide hot water in milk houses.

Oilburners are going to be acquired by 7,464 farmers in the Dakotas, with another 6,497 expressing the intention of purchasing oilfired space heaters. For house hot water 1,382 will buy oilfired water heaters, with similar units purchased by 1,382 for use in the milk house.

A tabulation of returns on heating equipment for both areas, along with comparative figures for equipment using other fuels, shows the following:

	North and South Dakota	Minnesota
WATER HEATERS:		
House—		
Electricity ...	19,628	27,209
Oil	1,244	2,645
Gas	6,635	5,858
Coal	1,797	567
Milk House—		
Electricity ...	7,879	19,462
Oil	1,382	2,078
Gas	968	1,323
Coal	415	189
SPACE HEATERS:		
Coal-Wood ..	1,935	2,834
Electric	1,935	1,323
Oil	6,497	7,180
Gas	2,212	756
BASEMENT FURNACE	8,846	10,959
OILBURNER	7,464	8,692
COAL STOKER	4,561	4,724
GASBURNER	2,903	2,078

❖

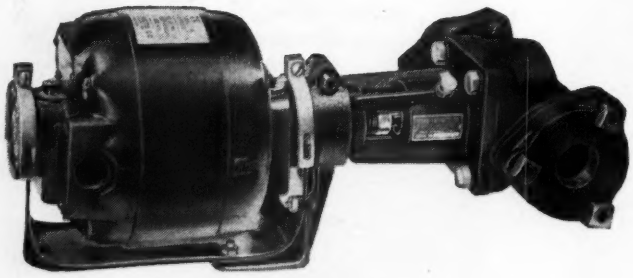
G. Gordon Biggar, assistant manager of public relations, Shell Oil Co., New York, N. Y., has been elected president, Industrial Audio-Visual Association, and *Daniel Rockford,* Standard Oil Co. (N. J.), has been named vice-president. The Association is a nation-wide organization, established to study and promote the use of all forms of audio-visual materials and equipment.

Robert J. Hull has been appointed coordinator of marketing on the New York staff of Cities Service Co., New York, N. Y. Mr. Hull has served in various petroleum sales capacities of Cities Service companies since 1923 and will make headquarters in the company's New York offices.

Edwin Heina, associated with Perfection Stove Co., Cleveland, Ohio, died suddenly on March 29 at his home in Cleveland Heights, at the age of 74. He joined Cleveland Metal Products Co., parent company of Perfection, in 1908 as employment manager and held various other posts in the materials procurement and factory management fields. In 1925 he was elected treasurer, a position he held for five years before his retirement in 1930. He remained a member of Perfection's board of directors until his death. Mr. Heina is survived by his widow and two daughters.

Econo

Circulators
Flow Control Valves
Low Water Cut-Offs
Heating Specialties



The Econo Circulator provides for instant adjustment for any direction of flow.

Simply loosen the Allen screw clamp and turn pump assembly to ANY position. Nothing to take apart—no gaskets to replace—no leakage.

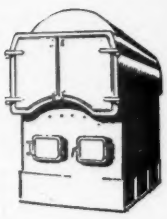
A real time and money saver.

Write today for our complete catalog.

ECONO PRODUCTS CO.

17 State St., New York 4, N. Y.

Boilers? Sure!! but tanks too!



"No let-down in boiler production insofar as materials permit" is the Fitzgibbons watchword. New large plant facilities and adequate personnel are being *added*, exclusively for defense production. Present facilities suitable only for boiler production and personnel will continue to serve the thousands of builders, architects, heating contractors and jobbers who demand "the best in steel boiler heat"— The Fitzgibbons Boiler.®

Reprinted from
DOMESTIC ENGINEERING March, 1951

LIMITED PRODUCTION facilities are not likely to be the cause of product shortages in the foreseeable future, according to several prominent manufacturers at the heating and ventilating show last month in Philadelphia.

Fitzgibbons Boiler Company, for example, announced the construction of a new plant to turn out defense orders, and at the same time revealed a determination to use existing facilities as long as possible for the full scale production of civilian lines.

Paul K. Addams, president of Fitzgibbons, told DOMESTIC ENGINEERING that, unlike the last war his company intends to remain in the boiler business.

"The economy of this country must be maintained at the highest levels, and the need for comfort, convenience and public health involved in the adequate heating of homes, apartments, schools and other buildings, is just as important a phase of the defense economy as the production of tanks, guns, ships and planes," Mr. Addams said.

OSWEGO PALLADIUM-TIMES, WEDNESDAY, JANUARY 17, 1951 PAGE THREE

FITZGIBBONS TO BUILD TANK HULLS

Plans To Erect Plant Addition To Aid Defense

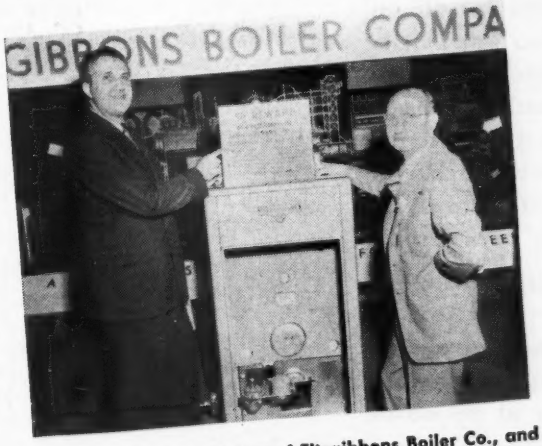
Expansion of plant and facilities of the Fitzgibbons Boiler Co., Inc., in Oswego, by construction of additional buildings to provide about 90,000 square feet of additional production space for fabrication and assembly of welded steel and armor plate hulls for a new type medium combat tank for U. S. Army Ordnance, was announced by President Paul K. Addams, Wednesday noon

600 More Employes

Ultimately from 600 to 800 additional employees with the required skills will be needed to carry on the program. This employment will be in addition to the employees required to sustain the normal boiler and plate products business of the corporation in the existing building. It is the company's intention to remain in the boiler business

The economy of this country must be maintained at the highest levels and the need for comfort, convenience, and public health involved in the adequate heating of homes, apartments, schools and other buildings, is just as important a phase of the defense economy as the production of tanks, guns, ships and planes, he said.

Above: Typical of the trend already underway in our industry, the Fitzgibbons Boiler Co. is building new production facilities to turn out defense orders. Unlike the last war, this company's existing plant will be devoted to civilian production.



Paul K. Addams, president of Fitzgibbons Boiler Co., and John Collette, are shown with a new gas-fired unit, unveiled for the first time at the Philadelphia show.

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y.

Manufactured at: OSWEGO, N. Y. *Sales Branches in Principal Cities*

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

OHI offers Insurance Plan to dealer Members

FORMATION of an insurance trust to provide a Group Life Insurance Plan for dealers and their employees has been announced by the Distribution Division, Oil-Heat Institute of America, Inc., New York 16, N. Y. Under the Plan, owners, partners, officers and managers will be insured for $5,000; salesmen and department heads for $2,500 and all other employees for $1,000. Face value of the policy becomes payable in the event of death from any cause and in the event of total disability, premiums will be waived.

Distribution Division Chapters, which do not have similar plans of their own, will be offered the Plan, which is designed especially for those dealers who do not employ enough people to be eligible for regular group life insurance. Small dealers are enabled to provide added security for themselves, their officers and employees at low cost and without medical examinations.

Trustees for the Plan are J. H. B. Albert, president, Operators Heat, Inc., Baltimore, and a director of OHI; Fred N. Beckwith, executive secretary, Oil Heat Institute of New England and a director of OHI and W. O. Spiess, national secretary, Distribution Division of OHI.

Eddington
Oil Burner
Nozzles
. . . every one factory-tested for your greater convenience and profit!
Yes, for your greater convenience and profit! When you install an Eddington Nozzle, you know it is right for spray angle, atomization, and rated capacity. What's more — with a large-capacity Monel strainer in each nozzle to keep orifice and slots from plugging — cleaning is a rare event.
Timely tip: Uncertain period ahead. Eddington oil burner products more important than ever for they keep customer-service interruptions at an absolute minimum.
Check your Eddington needs here:
FILTERS
NOZZLES
VALVES
STABILIZERS & AIR CONES
STRAINERS
ADAPTORS
INSPECTION MIRRORS
SERVICEMAN'S NOZZLE KITS
Want information on any of the items listed? Just drop us a postal; you'll get a quick reply.
EDDINGTON METAL SPECIALTY COMPANY
1050 Czarnecki Street, Eddington, Pa.

New England Group starts Oilburner training Schools

A NEW SERIES of classes started on April 9 in Group III, Course F of the Technicians' Training School for Oilburner Mechanics, sponsored by the Oil-Heat Institute of New England, Boston 15, Mass. As in previous years members of the Institute have preference in enrolling their personnel, with initial registration limited to the areas where schools are conducted. Cost of the course is $25 per student, with members entitled to a 20% discount. Complete details are available from the Institute's Director of Education.

Classes are held one night each week in five cities, commencing with Monday night sessions in Salem, Mass. at the Hotel Hawthorne and on Tuesday evenings in Lawrence, Mass. at the Y.M.C.A., with Manchester, N. H. the site of Wednesday evening instruction at the Chamber of Commerce. On Thursday nights a group of oilburner mechanics in the Portland, Me. area will receive instructions at the Chamber of Commerce, followed by classes in Auburn, Me. on Fridays at the Knights of Pythias Building.

Dealers participate in Baltimore "Press Day"

A "PRESS DAY" was sponsored jointly on April 26 by the Maryland Oil Industry Information Committee and the Oil Heat Association of Maryland, Baltimore 1, Md. The ballroom of the Hotel Stafford was the site of the noon meeting, which was designed to expose the gathering, as a group, to the science of public relations.

"SM*" HAS HELPED OUR PRODUCTION"

says *President of the Auburn Burner Company*

General Electric SM* ignition transformers

*Standardized Manufacture

benefits the oil burner industry:

1. More reliable shipping
2. More flexible delivery
3. Greater production
4. Lower costs

"SM has certainly helped our production picture" says Mr. H. C. McIntyre, President of the Auburn Burner Company, Auburn, Indiana. "Being able to standardize on ordering ignition transformers has saved us considerable design time. And getting more reliable delivery schedules, despite impending material shortages, keeps our production from falling down. So, looking into the generally unpredictable supply situations ahead of us, we are certainly glad to know that SM means real production advantages to us."

Yes, many oil burner manufacturers are learning the real sense behind General Electric's Standardized Manufacture program because it eliminates special designs and small lot production of ignition transformers. In a serious effort to help co-ordinate the oil burner industry's requirements, G.E. now offers a line of Standardized-Manufacture ignition transformers. The fact that this program of standardization is geared to the industry's needs is clearly shown —already 75% of G-E customers use one of the four SM models.

You will find that by eliminating production changeovers—by building SM transformers in quantity, G.E. can offer you greatly improved delivery and smoother production control. *General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

fuel oil & oil heat

Neil H. Swanson, executive editor of the Baltimore Sunpapers, addressed the session, stressing the importance of public relations and the effect they have on individual businesses.

Wisconsin Dealers hear Talk on civil Defense

THE BUSINESS SECTION of the regular meeting of the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wis., held March 29 at the Wisconsin Hotel, received reports of the advertising fund, membership and Home Show committees and received advance information on the National Oil Heat Exposition and Convention, held in Chicago April 2 to 6.

As a special feature, Deputy Police Inspector Raymond A. Dahl delivered an enlightening talk on "Civil defense and the industry's place in the program."

Albert tells Massachusetts Dealers of gas Competition

A GENERAL MEETING of the Massachusetts Oil Heating Association, Inc., Boston, Mass., was held on April 17 at the Hampton Court Hotel, Brookline. Featured speaker at the dinner-meeting was J. Hollis B. Albert, owner of Operators Heat, Inc., Baltimore; president, Oil Heat Association of Maryland, Inc. and national chairman of the Distribution Division, Oil-Heat Institute of America.

He told in detail how the Maryland dealers successfully combatted natural gas competition in Baltimore and vicinity, describing how the Association organized promotional campaigns, using newspaper advertising, billboards, direct mail and other means, to sell oil heat.

Pacemaker for Profits . . . from Expert Heating Service

Making the most of your ability to do an expert tune-up job will pay you big dividends in gaining you competitive leadership and neighborhood recognition of your competence as a heating expert. The combustion-testing kit shown here contains precision-made quality instruments with which you can make fullest use of your know-how in making a fuel conservation survey, checking a burner for wornout parts and needed repairs, or running an efficiency test to close a replacement deal.

The kit contains the well-known FYRITE CO_2 Indicator, the versatile MZF Draft Gauge, the all-metal TEMPOINT Stack Thermometer and the sensationally new TRUE-SPOT Smoke Tester. Now, for the first time you can adjust an oil burner quickly and expertly for highest CO_2 without objectionable smoke . . . do away with guesswork, and "hit and miss" fumbling in adjusting for clean firing. The "Scale of Soot" which comes with the TRUE-SPOT tells you the limits of permissible smoke for various burners and types of heating systems. This amazingly simple method of oil burner adjustment is the greatest advance in combustion testing since the introduction of the FYRITE CO_2 Indicator.

Ask your Jobber for the FYRITE Utility Kit or write for Bulletin 777

BACHARACH INDUSTRIAL INSTRUMENT CO.

7000 BENNETT STREET · PITTSBURGH 8, PA.

IOMA announces Plans For annual Convention

THE 27TH ANNUAL CONVENTION of the Independent Oil Men's Association, Boston, Mass., will be held on June 13 at the Hotel Statler, Boston. Joseph B. Wells, executive secretary, reveals that plans for the all-day meeting, which includes meetings, luncheon and dinner, have been virtually completed.

Four principal speakers are scheduled to appear: A. L. Nickerson, vice-president, Socony-Vacuum Oil Co., New York; R. L. Bowditch, director of Division in charge of Solid Fuels, Petroleum, Public Utilities and Transportation, Office of Price Stabilization; O. D. Judd, acting chief, Petroleum Branch, Office of Price Stabilization and Kirk B. Shivell, director of promotion, Fuel Oil Foundation, New York.

OHI of New England gathers Fueloil ceiling price Data

A QUESTIONNAIRE mailing, made in the middle of April, by the Oil-Heat Institute of New England, Boston 15, Mass., gathered current tank wagon ceiling prices for the various grades of fueloil sold in cities and towns. The data were requested in anticipation of action by the Regional Office of the Office of Price Stabilization to accumulate information for the "spelling out" of ceiling prices on fueloil at all levels.

Information received by Fred N. Beckwith, executive secretary of the Institute, indicated that the Office proposed to issue specific dollars and cents

The Answer is BASE-RAY!

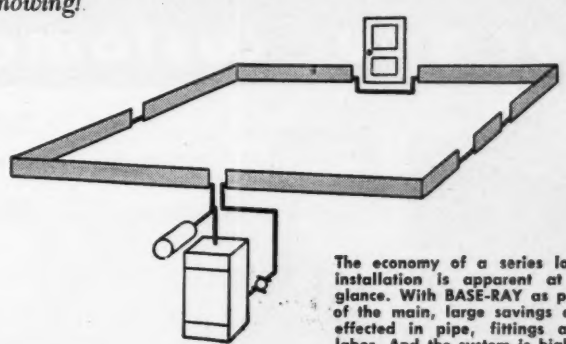
By Scientific Test there is No Better Heat for

IN ranch type homes, particularly those erected on concrete floors, *good* heating calls for BURNHAM BASE-RAY* Radiant Baseboards. Here are two compelling reasons:

1. WARM FLOORS – Scientific tests have shown a variance of less than 2° from 3 inches above concrete floor to the 30" level. Also with an indoor-outdoor temperature difference of 70°, the concrete slab itself ranged between 70° and 68°. This means warm floors – real comfort.

2. LOW INSTALLATION COST – BASE-RAY eliminates up to 50% of the pipe and fittings when the series loop system is used. (Note the diagram shown and see page 10 IBR Installation Guide #5.) This not only reduces costs but also results in saving scarce materials such as steel pipe and copper tubing. Also installation labor on the piping system can be brought down better than 50%. This means hot water heat at a surprisingly low figure.

Ask us for complete information! It's a story well worth knowing!



The economy of a series loop installation is apparent at a glance. With BASE-RAY as part of the main, large savings are effected in pipe, fittings and labor. And the system is highly satisfactory in operation with forced circulation hot water heat.

Above: **The low, sweeping lines of BASE-RAY add beauty to any room and make this method of heating particularly appealing to women.**

Below: **Cast as a single unit, the fins on BASE-RAY are permanent. That's why BASE-RAY'S efficiency is so much greater.**

FREE! NEW, REVISED "Ratings and Installation Guide on BASE-RAY Radiant Baseboards." Up-to-the-minute information, illustrated with simple diagrams, shows how easy it is to order and install BASE-RAY. Write today!

*Reg. U. S. Pat. Off.

Burnham Corporation

"PIONEERS OF RADIANT BASEBOARD HEATING"

IRVINGTON, N. Y., Dept. FO-51

I·B·R — Institute of Boiler and Radiator Manufacturers · Member

Burnham RADIANT HEATING SINCE 1873

BURNHAM CORPORATION
Irvington, New York Dept. FO-51

Please send me copy of "Ratings and Installation Guide" on BASE-RAY Radiant Baseboards.

Name_____

Address_____

City_____ State_____

Fuel Oil Heat

ceiling prices on Nos. 1, 2, 5 and 6 fueloils in local trading areas. Dealers were asked to list individual ceiling prices, including full explanations of any unusual circumstances which it is felt would warrant adjustments in current ceiling prices.

ESPA to hold two-day Convention in Buffalo

THE TWO-DAY annual convention and trade exhibit program of Empire State Petroleum Association, New York 17, N. Y., will take place on May 21 and 22 at the Hotel Statler, Buffalo, N. Y. Devoted to the question of mobilization and the petroleum jobber, the convention will hear Orville D. Judd, acting chief of the Petroleum Branch, OPS, discuss price stabilization and the petroleum jobber.

At the first afternoon session Prof. Raymond Rodgers, New York University's School of Commerce, will analyze the nation's business outlook and Thomas W. Phelps, Socony-Vacuum Oil Co., will discuss the facilities and capital requirements needed to meet the new petroleum demand. Kirk B. Shivell, marketing counsel, will close the session with a report on "Keeping oil the number one fuel."

In addition to Mr. Judd, who is to speak at the second day's afternoon meeting, Otis H. Ellis, Washington counsel for the National Oil Jobbers Council, will talk about "Petroleum jobbers and the Washington scene." John L. Lenker, Gulf Oil Corp. also will appear to analyze the jobber's stake in the OIIC program.

Philadelphia Group Seeks new Members

HARRY J. MAGEE, JR., is supervising an intensive membership drive being conducted by the Oil Heat Dealer Division of the Electrical Association of Philadelphia. He recently appointed an executive committee, with William W. Jackson as chairman, and a membership committee, headed by Paul Jacobs.

Non-member prospects all have been contacted by letter, with a return card to be used to indicate interest in membership. By the end of April thirty applicants had been signed up and an additional number of interested prospects are still being visited by committee members.

Two Schools added to schedule Of Indoor Comfort Conferences

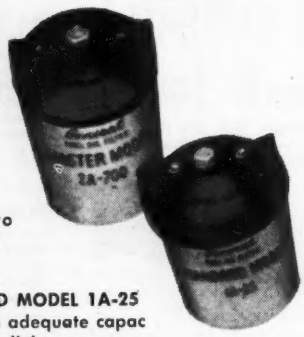
TWO ADDITIONAL SCHOOLS have been added to the list of cities where Indoor Comfort Conferences will be held during 1951. These are in addition to the list reproduced on page 102 of the January issue, containing the dates, places and chairmen of the two-day schools on design and installation of warm air heating systems which are conducted by the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio.

On June 15 and 16 an Indoor Comfort Conference will be held in Albany, N. Y., C. L. J. Ager, H. B. Kimmey Co., Inc., chairman. The final Conference scheduled will take place in Utica, N. Y. on June 20 and 21, L. B. Sherry, International Heater Co., chairman.

A total of ten schools are to be held during May and June, with Guy Voorhees acting as instructor.

GENERAL FUEL OIL FILTERS—THE BEST for your customers . . . and for you

DELUXE MODEL 2A-300
Best for large systems or for dirty storage tanks.



MASTER MODEL 2A-700
Built for the average to large size heating system.

STANDARD MODEL 1A-25
More than adequate capac ity for small homes, space, and hot water heaters.

UNDERWRITERS' LABORATORY. Re-examination Service Listing means dependability—and customer confidence.

THESE *GENERAL* FEATURES INSURE A CLOG-FREE FUEL SYSTEM — FEWER SERVICING WORRIES FOR YOU — GREATER SATISFACTION FOR YOUR CUSTOMERS:

1. All-wool, large-surface cartridge used in 1A-25 and 2A-700, provides fine filtration and removes moisture due to condensation. The wire-mesh strainer inside the wool felt gives double protection. No more customer dissatisfaction from shut-downs due to clogged nozzles—no more costly "call-backs" to run up your service costs.

2. Easy-to-insert cartridges that insure clean oil. Every *GENERAL* filter installed means regular repeat business on cartridge replacements.

3. There's a *GENERAL* model for every system, large or small, Gravity or Pressure burner.

4. Original unit cost is low, installation is easy, and sturdy metal construction guarantees LIFE-OF-BURNER service.

GENERAL FILTERS INCORPORATED — GENERAL FUEL OIL FILTERS — 12890 WESTWOOD AVE. DETROIT 23, MICHIGAN

CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVE., TORONTO 3, ONTARIO

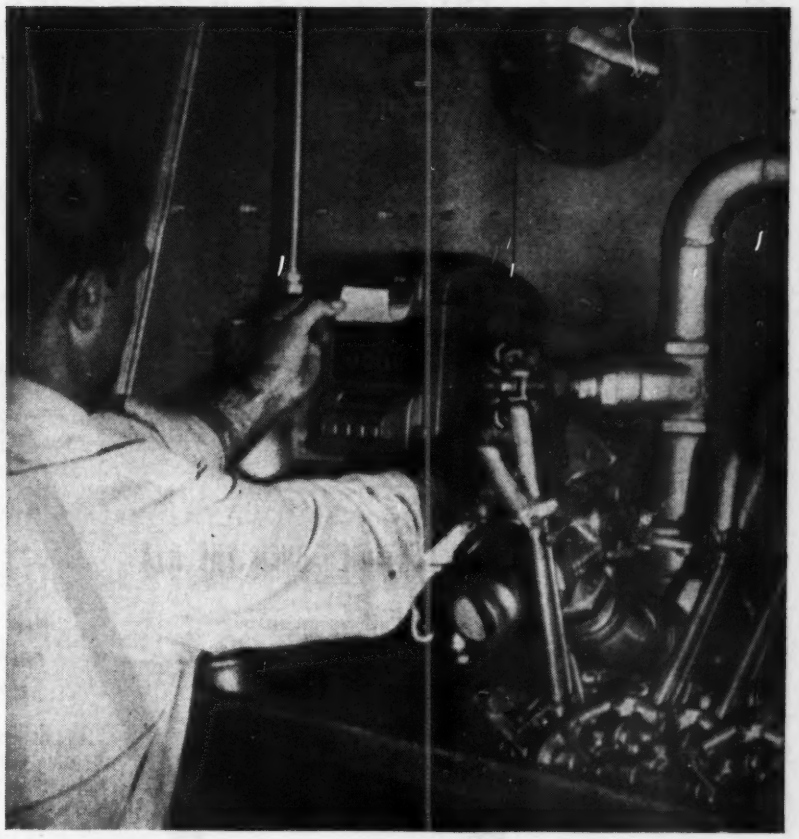
a 1% Delivery Error

LOSES $1000 PER TRUCK EACH YEAR

MONEY THAT CAN BE SAVED EASILY BY AN ACCURATE RED SEAL® METER COSTING 1/3 AS MUCH

A 1% error too small to worry about? Not in the oil business! For instance, in Chicago, a 2000-gal. truck delivering 8-cent oil, three trips a day, handles product that costs over $100,000 a year!

That's worth protecting with the most accurate meters it's possible to obtain—for in one year the meter must accurately account for oil worth 300 times the cost of the meter itself! This common-sense applies to your bulk plant operations too. Replace inaccurate measuring devices with the meters famed for *sustained* accuracy—Red Seal Meters. Ask your nearest Neptune office or Neptune equipment jobber to show you *why* Red Seal Meters are the most accurate and easiest to maintain—*best* for all your trucks and loading racks.



20-J

NEPTUNE METER COMPANY
50 WEST 50TH STREET
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Branch Offices

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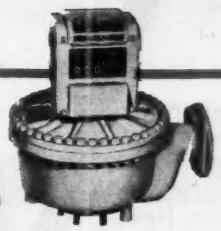
LOS ANGELES • LOUISVILLE • No. KANSAS CITY, MO.
PHILADELPHIA • PORTLAND, ORE. • SAN FRANCISCO
Canadian Factory: LONG BRANCH, ONT.

RED SEAL METERS ®



There's a Red Seal Bulk Plant or Tank Truck meter for every use. See the improved Auto-Stop quantity control and Print-O-Meter ticket printing registers.

OHI Booklet tells Consumers How to select heating System

A CONSUMER BOOKLET, prepared for use by the Distribution Division members of the Oil-Heat Institute of America, New York 16, N. Y., is entitled "House Warming in the Modern Manor" and tells how to select a heating plant. Introductory paragraphs point out the importance of careful selection of a heating system and emphasize the valuable assistance that can be rendered by an architect, heating contractor or oilburner dealer.

The four vital factors in heating a home—efficiency, dependability, economy and safety—are explained in the light of what they can contribute to a homeowner's satisfaction, followed by a detailed discussion of steam, hot water and warm air systems. Each type is pictured in diagram, accompanied by brief outlines of how it operates. Forced and gravity circulation types are explained, along with diagrams and descriptions of perimeter and panel heating systems.

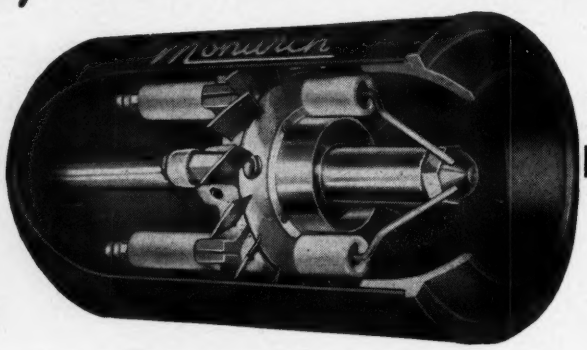
The center spread of the booklet cautions that first cost is the least important factor to consider, but rather when buying a heating plant the homeowner should be more concerned with the value that will be received for the money spent. This section concludes with the observation, "You'll find automatic oilheat fully combines efficiency and economy, with trouble-free operation. It gives you everything you require from a heating plant, wherever you live, whatever your needs."

Other copy emphasizes that conversion oilburners can be supplied for any type of heating system and that "Any way you look at it, automatic oilheat is best."

Distribution Division members can secure information about the booklet from their local chapters or direct from the Institute at 6 East 39th St., New York 16.

.....MONARCH.....

Investigate THE NEW G81 COMBUSTION HEAD



The new G81 combustion head will produce just as high combustion efficiency as the G74 head and will burn from .60 to 2.00 gph.

"PLUS" FEATURES OVER THE G74

- Costs half as much.
- As easy to install as an ordinary air cone and stabilizer.
- Simpler in construction.

WRITE FOR INFORMATION

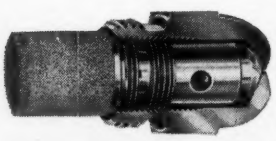
MONARCH BURNER NOZZLES Preferred Because:

1. Each nozzle is individually tested and checked for capacity against the flow of a calibrated master sample. Capacity tolerances are as low as plus or minus 2½%.

2. Standard nozzles will fire most gun type high pressure burners satisfactorily. (Special series are also available for burners requiring specified spray characteristics.)

New Monarch Porous Bronze Nozzle Filter

The first practical all-metal Nozzle Filter. Rugged and compact. Solid metal to metal contact with Tip eliminates any possibility of dirt getting inside the nozzle between the Tip and Filter. Equivalent to 200 mesh screen, and recommended for use on fractional gallonage nozzles.



Write for Catalogue D

MONARCH MFG. WORKS, INC.

2503 E. ONTARIO ST., PHILADELPHIA 34, PENNA.

European Distributor: A. Coutau, Rue de la Scie No. 16, Geneva, Switzerland

Sheet metal Group sets up Public Information Dept.

ESTABLISHMENT of a Department of Public Information has been announced by the board of directors of the Sheet Metal and Warm Air Heating Contractors Association of Indiana, Indianapolis, Ind. H. W. Meggs has been designated director in charge of the Department, which will be devoted to disseminating information on advanced methods of warm air heating.

By the use of lectures, with visual equipment, the public will be informed of the equipment, materials, engineering and skilled labor available to serve their warm air heating requirements. The lectures and speakers will specifically avoid promotion of individual brands, manufacturers, suppliers or firms.

NPA semi-annual Meeting Takes place in Cleveland

THE 48TH SEMI-ANNUAL MEETING of the National Petroleum Association, Washington, D. C., took place on April 18, 19 and 20 at the Hotel Cleveland, Cleveland, Ohio. A general session was held Thursday afternoon, April 19, featuring speakers who told of the operation of the PAD program, the government's price policy and the impact of selective service on industry.

Bruce K. Brown, deputy adminis-

HIT THE TRAIL TO GREATER PROFIT—BIGGER VOLUME WITH THESE NEW MODELS FOR SUMMER-WINTER, HOME OR BUSINESS

No matter what month, no matter what weather, you'll have timely products to sell with Chrysler Airtemp. Every home, every business place—stores, factories, shops or offices—is a red hot prospect for one or more of the many products built by Chrysler Airtemp. Don't let the season stymie your sales. Get your share of the year-'round market with the Chrysler Airtemp 12-month line. Mail coupon today for details of our lucrative franchise arrangement.

CHECK THESE SIX POINTS FOR PROFIT!

1—Products to Sell All Year.
2—National Advertising and Promotion.
3—A World-Famed and Trusted Name.
4—Products That Lead the Field.
5—Factory Help in Sales and Service.
6—Large Facilities for Volume Production.

SIX VITAL FACTORS FOR YOUR SUCCESS!

Airtemp Division of Chrysler Corporation FO&OH-5-51
Dayton 1, Ohio

Please rush me complete information on the profitable Chrysler Airtemp dealer franchise deal.

Name _____

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Chrysler Airtemp

CHRYSLER AIRTEMP

AIR CONDITIONING • HEATING • COMMERCIAL REFRIGERATION

Airtemp Division of Chrysler Corporation, Dayton 1, Ohio

OT* SERVICEMAN SAYS —

"I put in my thumb and pulled out a strainer... it's that easy to clean a strainer!"

"Whenever I clean a strainer on a Webster Electric Fuel Pump I realize the people who designed it had us servicemen in mind, for it's so easy and simple . . . It's the easy way to do a hard job in less time . . . I can service many more burners . . . no wonder I boost for Webster Electric products.

"Try them yourself and you'll know what I mean. I specify them on all new equipment and on all replacements, for I found that it pays."

*Old Timer

An identical unit is made for sale in Canada by Canadian Acme Screw & Gear, Ltd. of Toronto, under license by Webster Electric Company, Racine, Wisconsin. Established 1909.

WEBSTER ELECTRIC
RACINE • WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"

trator of the Petroleum Administration for Defense, spoke on "The Petroleum Administration and the National Defense Program." "The Other Fellow," a talk by Orville E. Judd, acting director, Petroleum Price Section, Office of Price Administration, explained the government's price policy and orders and Major General Lewis B. Hershey, director of Selective Service, discussed "Selective Service, Its Impact on Industry and Youth."

Mr. Judd in his talk briefly reviewed the background of the present emergency and explained that price decisions have a great deal to do with supply and our economy. He pointed out that the Office of Price Stabilization is "entrusted with the assignment of placing in effect rules and regulations which will control inflationary trends and ultimately stabilize commodity prices."

Speaking specifically of the petroleum industry, Mr. Judd congratulated it on the voluntary restraint it displayed during the last war and acknowledged that "in some instances in the future certain increased costs would normally justify product increases; however we believe in many instances such increases would not be mandatory when increased product movement and the net position of the primary supplier are given full consideration.

"In brief, we intend to draft our regulations so that the industry can operate as normally as possible in line with the intent of the Act. We intend to protect the consuming public to the ultimate degree possible against the actions of the few who would profiteer by virtue of the emergency."

Still another Government official addressed a meeting of the Department of Traffic and Transportation, held during the morning of April 19. He was Dene Hodges, director of Supply and Transportation, Petroleum Administration for Defense, whose topic covered "Petroleum Transportation in the Defense Program."

Henry W. Dodge, executive vice-president, Mack Trucks, also spoke during this session.

Mr. Dodge urged the petroleum industry, which serves both "trucks and tracks" to take positive steps to help

reconcile the differences between the railroad and trucking industries. He charged the railroads are preventing a unified transportation system by propaganda and emphasized that trucks haul up to 75% of incoming supplies and outgoing goods at the nation's defense plants and are part of America's production lines.

He said that highways must be built to meet the traffic demands of modern commerce and denied that trucks do excessive damage to roads. To finance the program for more and better roads, Mr. Dodge declared that "Trucks pay their own way and a good bit over. We believe trucks and highway users should pay their own way. We should not be opposed to all gasoline taxes or all highway use taxes in general. But, we don't think that highway users should be asked to bear on their galled shoulders all the expenses of government in general. Highways are a national asset in peace or war."

Other items on the program included a panel forum on manpower and draft deferment problems in the industry, sponsored by the Department of Industrial Relations and a joint meeting of the Department of Manufacture and the Department of Standards and Tests.

OHI of New England petitions For modification of NPA Orders

FORMAL PETITION has been submitted by the Oil-Heat Institute of New England for modification of NPA Order M-12 on copper and Regulation No. 4, covering maintenance, repair and operating supplies.

In asking for a modification of the copper order, the Institute's request pointed out that many New England dealers have contracted for the use of copper tubing in the installation of heating systems and, on the basis of the contracts, have secured the necessary materials and have them in inventory. Under Order M-12 they are prevented from using even those articles they have on hand and are required to shop for steel pipe and fittings, which also are in short supply. The petition cited two specific instances where dealers had copper tubing on hand and could not complete the jobs for which it was bought and asked that "an amendment

OT* SERVICEMAN SAYS—

"Compact... Easy to Install... Time saving...Interchangeable"

"I've been up against a hundred or more different types of transformers mounted in as many different ways.

"I solved that problem with the aid of Webster Electric foresighted engineers who made it possible through the use of a mounting plate to install their transformer on practically any job. It turns out just as I said. Their transformers are compact, easy to install, save installation time and are interchangeable. Try them."

*Old Timer

Webster Electric Company, Racine, Wisconsin
Established 1909.

WEBSTER ELECTRIC
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"Where Quality is a Responsibility and Fair Dealing an Obligation"

be issued to order M-12 which will allow the use of brass mill products, as such, in construction."

In asking for a modification of the MRO regulation, the Institute explained that approximately one million oilburners were used for heating in New England, 90% of them in dwellings, and pointed out the necessity for securing maintenance and repair supplies to keep them operating. The parts, continues the petition, must be on hand and readily available to be used for emergency service and should include oil storage tanks for replacements. "We, therefore, request that an amendment be issued to Regulation 4, allowing the service organizations to assign a DO-97 rating for such parts and materials as may be required for service and maintenance on oilburners in domestic use."

❖

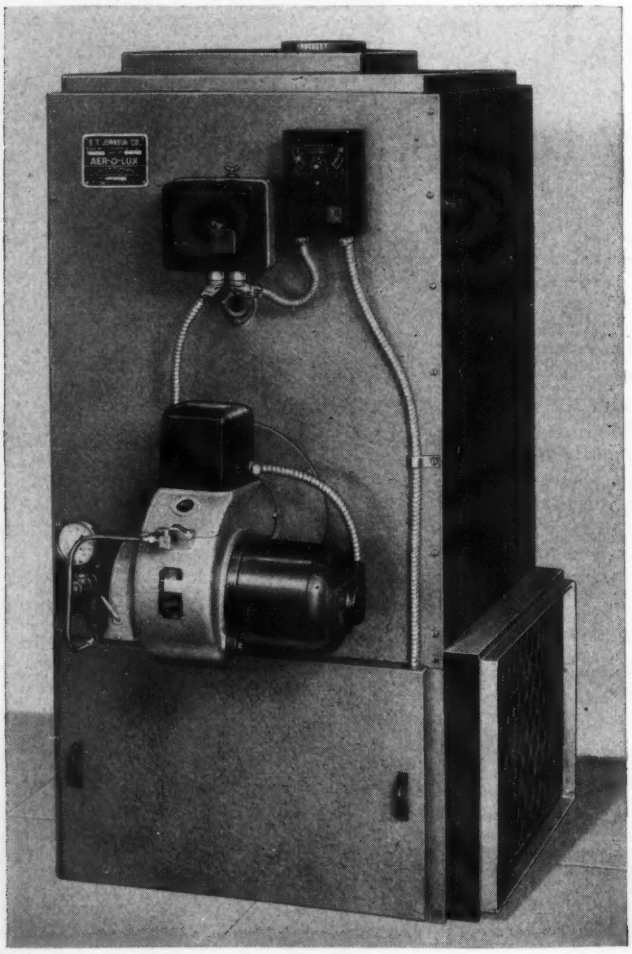
John E. Haines is president of the recently-formed appliance controls division of Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. He continues also as vice-president of the company in charge of the commercial controls division. The new division, with plants and offices in Los Angeles, makes controls for domestic hot water and space heaters, with future plans to broaden the product line with additional appliance controls. Mr. Haines' headquarters will continue to be in Minneapolis, with part of his time spent in Los Angeles.

William W. Guitteau has been appointed manager of supplies, Allied Oil Co., Cleveland, Ohio. He had been acting manager of the department for the past six months and has been associated with Allied for 13 years, with the exception of three years military service.

Alfred S. Sampierre on April 1 became vice-president in charge of manufacturing and engineering, Jackson & Church Co., Saginaw, Mich., succeeding Clarence Ahlborn, deceased, who had been supervising manufacturing operations. Mr. Sampierre, for 24 years' associated with the Baker-Perkins Co., manufacturers of specialized machinery, resigned his position as superintendent of the firm's Saginaw division to join Jackson & Church.

Alexander Fraser, chairman of the executive committee and a director of Shell Oil Co., retired from the firm on March 31. He had been with the company 32 years and was president from 1933 until 1949. Mr. Fraser is a past president of the Twenty-Five Year Club of the Oil Industry and a director of the American Petroleum Institute. His experience will continue to be available to Shell on a consulting basis.

Samuel B. Eckert, for many years vice-president in charge of marketing, Sun Oil Co., Philadelphia 3, Pa., has retired after 43 years of active service. For the past year Mr. Eckert has been executive vice-president, a position created especially for him. At the same board meeting which announced Mr. Eckert's retirement, *Samuel M. Gladney,* Dallas, was elected assistant secretary. Other officers were re-elected.



Another "Winner"
in the line-up of Johnson Burners!

AEROLUX 65-U

. . . a super-efficient new
***oil-fired* WARM AIR HEATER**

This new model of Johnson's Aerolux will do an exceptionally economical job of heating homes and buildings having a heat loss of 50,000 to 65,000 BTU per hour. It is powered by the famous Johnson Bankheat Burner . . . one of the most efficient pressure-atomizing-type burners ever manufactured. Operation is completely automatic.

For installation in close quarters (even in a closet on the main floor) the Aerolux 65-U is exceptionally adaptable as it measures only 25" square on the floor and 52" high. It is listed by Underwriters Laboratories for Less than Standard Clearances and carries Commercial Standards Label CS-75.

To reduce installation costs the Aerolux 65-U is completely assembled with all controls in place before shipping. If you didn't see it at the Chicago Exposition, it will pay you to check up on its remarkable performance and adaptability at the earliest opportunity. Your nearest Johnson Dealer will gladly give you details . . . or you can write to us direct.

.....Johnson Oil Burners....

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
401 No. Broad St., Philadelphia 8, Pa.

DO YOU SELL ONE OF THESE FAMOUS MAKE SPACE HEATERS?

ALLEN'S
BARNES
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MAGIC CHEF
MONARCH
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PERFECTION
PREWAY
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SAFEWAY
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TORRIDAIRE
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If you do . . .

NOW YOU CAN EARN EASY ADDITIONAL PROFITS BY SELLING AUTOMATIC HEAT CONTROLS

Yes, if you sell one of the famous-make space or trailer heaters listed here you can offer every customer the luxury of true automatic, thermostatically controlled heat! This means easier selling, because you can offer comfort and convenience equal to the most expensive kind of heating, with no wasted heat — and substantial fuel savings!

What's more, this easy-to-sell comfort means ADDITIONAL PROFITS for you. Write now for Bulletin T-2 on A-P Comfort Controls.

EASY TO INSTALL

There's an A-P Electric or Mechanical Comfort Control actually engineered to fit these heaters. Just mount conversion top on present manual control; connect to thermostat and transformer. Mechanical thermostat even eliminates wiring!

DEPENDABLE Controls

Famous for completely reliable service . . . in oil heating . . . gas heating . . . refrigeration.

A-P CONTROLS CORPORATION

(formerly Automatic Products Company)

2458 N. Thirty-second Street • Milwaukee 45, Wisconsin • In Canada: A-P Controls Corporation, Ltd., • Cooksville, Ontario

Manufacturers' Activities

Oil-O-Matic introduces its Dealer Management Manual

A WEEK-LONG sales meeting recently held at the Eureka Williams Corp. plant in Bloomington, Ill., witnessed the introduction and discussion of the Williams Oil-O-Matic Dealer Management Manual. Written primarily as a "what to do—and how to do it" book for dealers, it is an exhaustive study going back over 30 years of Oil-O-Matic history, reviewing methods and practices that have resulted in profitable dealer operations.

More than a year was spent in research, writing and editing the manual, which contains 235 liberally illustrated pages, divided into 10 main sections. Such subjects as market analysis, successful selling methods and setting up of budget systems are given thorough treatment. Particular emphasis is placed on the hiring, training and supervision of retail salesmen.

Reproductions of charts and forms through the manual make it an exact recording of a complete selling system. It is made up in loose leaf form to permit insertion of revisions, new ideas and case histories and other supplemental material. Each manual is serial numbered and recorded at the factory, with distribution of the book to dealers by personal presentation of field representatives only. Much of the material in the book was collected, compiled and sorted from hundreds of actual case histories and Oil-O-Matic success stories.

Norge Heat appoints three New England Distributors

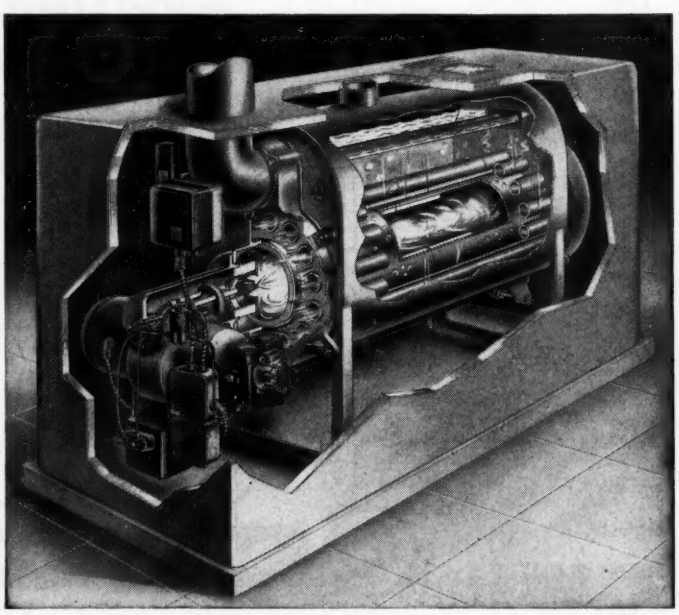
THREE DISTRIBUTORS in the New England area have been appointed by the Norge Heat Div., Borg-Warner Corp., Detroit, Mich. Western Massachusetts will be covered by the Burden-Bryant Co., Springfield, Mass. and the H. Gershman Sheet Metal Co., Pawtucket, R. I., will operate in the entire state of Rhode Island. The appointment of Henry N. Clark Co., Boston, Mass., provides for the company to function as wholesale distributor in eastern Massachusetts, Vermont, New Hampshire and Maine.

A-P Controls *of Milwaukee is contributing to the comfort of the soldiers in Korea with an aluminum tent heater control made under defense contracts. It weighs 1 lb., 1½ oz., burns either gasoline or fueloil with complete safety and is equipped to withstand 60 degree below-zero weather without cracking. A-P Controls engineers designed the valve being made for three companies who manufacture tent heaters. This Acme newsphoto shows United States and Australian soldiers resting at a medical station following their release by Chinese Communists.*

The Bethlehem Crusade-a-therm

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

Provides the Features Your Customers Want



Here is a complete, self-contained heating plant that replaces the old-fashioned boiler, with its grates, doors, drafts, etc., and the hot water heater or coil, with its unsightly storage tank and piping. Built right into the Crusade-a-therm is the remarkable Bethlehem Crusader Burner, a compact precision machine designed to perform its function with greater efficiency than anything of its kind before, insuring clean, even automatic heat, without thought or effort. This "package" of remarkable heating efficiency is only 60 inches long, 21 inches wide, and 35 inches high.

The Bethlehem Crusade-a-therm assures Bigger Profits for you, Mr. Dealer!

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

A few exclusive Bethlehem Crusade-a-therm territory Franchises are still available. Wire or write immediately for full information.

Each company will stock and distribute through franchised dealers the complete line of Norge Heat equipment and will enable the dealers to get more rapid delivery, engineering experience and merchandising benefits.

Selectrol opens Showroom; Names sales Representative

OPEN HOUSE was held during the week of May 5 to 12 by Selectrol Engineering Co., Brooklyn, N. Y., manufacturers and wholesalers of heating and air conditioning equipment, to mark the opening of its new showroom building at 2030 McDonald Avenue. The showroom measures 20 by 100 ft. and is of the most modern design, with a high plate glass window, asphalt tile throughout and fluorescent lighting. The company, recently named metropolitan New York and Long Island distributors for the Automatic Firing Corp., manufactures a complete line of Selectrol oilburners and distributes Magic-Heet boilers.

Harry B. Osmundsen, Montclair, N. J., has been appointed sales representative, covering the entire state of New Jersey.

National Radiator Catalog Of general heating Products

CATALOG NO. 586, available from the National Radiator Co., Johnstown, Pa., is a 20-page condensed general catalog of heating products. Printed in two colors, it contains essential descriptive information on National products, including ratings, capacities, inputs and outputs, roughing-in dimensions and domestic hot water heater recoveries.

Among products illustrated are cast-iron and steel boilers for coal, stoker, gas and oilfiring; convectors and their enclosures; cast-iron radiation, baseboard heating units; domestic water heaters; horizontal and down-flow unit heaters.

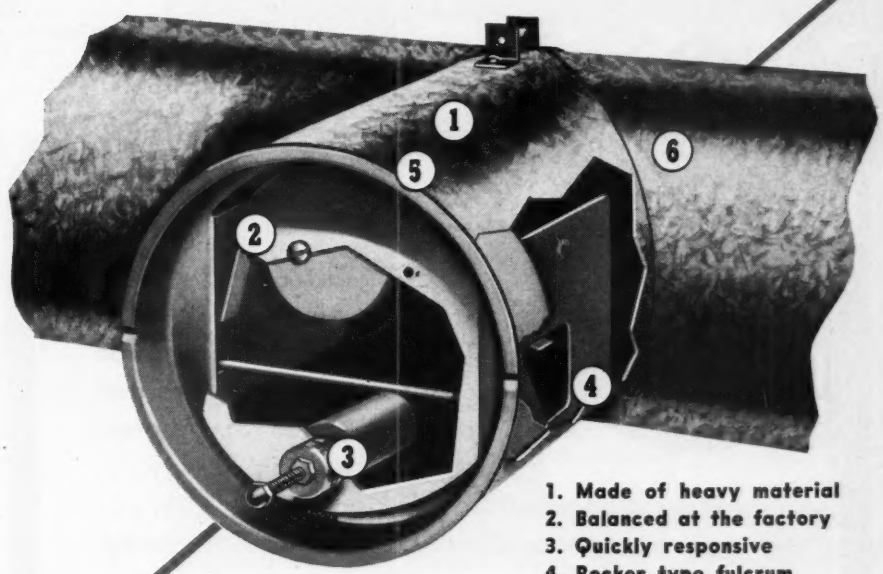
Swirling Flame moves to Long Island City Site

ON MAY 1 the Swirling Oil Burner Mfg. Corp., makers of Swirling Flame pressure atomizing oilburners with a vertical nozzle, moved to new headquarters at 22-15 37th St., Long Island City 6, N. Y. Factory, laboratory

Leaders AMONG HEATING EQUIPMENT

MANUFACTURERS CHOOSE THE Leader

AMONG BAROMETRIC DRAFT CONTROLS



1. Made of heavy material
2. Balanced at the factory
3. Quickly responsive
4. Rocker type fulcrum
5. Does not warp, clug
6. Free smoke passage

AND THAT MEANS field OF COURSE

Heating equipment manufacturers, as well as jobbers and dealers, have elected FIELD the LEADER among draft controls. And that's because Field Controls are the most accurate, most dependable, most "saleable" draft controls available. Only Field has all the famous features needed to bring out the top efficiency in a heating plant. That's why 7 out of 10 installations now carry a Field Control.

Don't experiment. Put a Field Draft Control on every installation. When a better draft control is designed it will come from the Field laboratories.

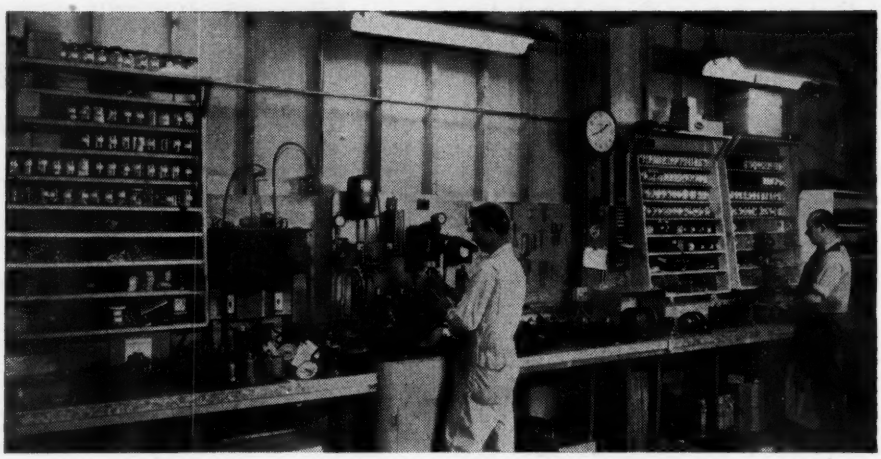
field CONTROL DIVISION

DIVISION OF H. D. CONKEY & CO. • MENDOTA, ILLINOIS

AFFILIATES { CONCO BUILDING PRODUCTS, INC. BRICK • TILE • STONE
CONCO MATERIALS HANDLING Div. CRANES • HOISTS

and general offices are located at the new plant.

Officers of the corporation include J. C. Donella, president; Joseph Scanapico, treasurer; Robert Doyle, vice-president in charge of production; Daniel Sands, secretary; R. D. Schoenwetter, chief engineer and Frank Hughes, sales manager.



Assembly line *used by George T. Hall Co. for rebuilding float valves. A similar modern set-up is used for pumps.*

Hall Company enlarges Rebuilding Department

RECENTLY the George T. Hall Co., Los Angeles 16, Calif., moved its rebuilding department into a new building, designed for reconditioning controls on a production line basis. The firm acts as distributor and service station for A-P Controls, Detroit Lubricator, Webster Electric, Sundstrand Machine and Tuthill Pump, operating in the six southwestern states.

The firm also has added a comprehensive stock of new oil valves, pumps, nozzles and combustion instruments.

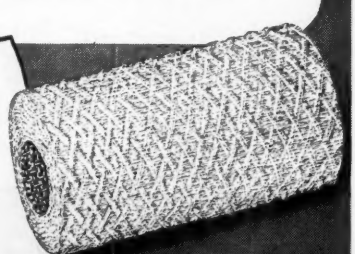
Fulflo FILTERS
REG U S PAT OFF

Finer and Finer!

The Honeycomb Filter Tube of a FULFLO Filter gives true *depth* filtration of progressively increasing density . . . every drop of oil filtered again and again . . . finer and finer . . . to microscopic clarity.

- This superior filtration is responsible for the outstanding sales leadership of FULFLO Filters . . . they sell better because they filter better.
- Dealers everywhere have found FULFLO Filters more effective than any other in eliminating costly service calls. They prevent fouled points, clogged nozzles, scored pumps, stuck valves and all troubles arising from minute oil impurities.
- For utmost pleasure and profit from your Oil Burner business make sure there is a FULFLO Filter on every Oil Burner you sell or service.

The best selling Oil Burner Filter Replacement Tube is RF4. Six in a counter carton with gaskets and instructions. Fits all 4-inch FULFLO Filters. True depth filtration. Precision controlled density.



IF YOUR JOBBER CAN'T SUPPLY YOU WRITE OR WIRE US

COMMERCIAL FILTERS CORPORATION
BOSTON 27, MASSACHUSETTS

Chicago Company named Steinen Representative

THE HIMELBLAU ASSOCIATES, Chicago 44, Ill., have been appointed representatives for the Oilburner Accessories Division of Wm. Steinen Mfg. Co., Newark 5, N. J.

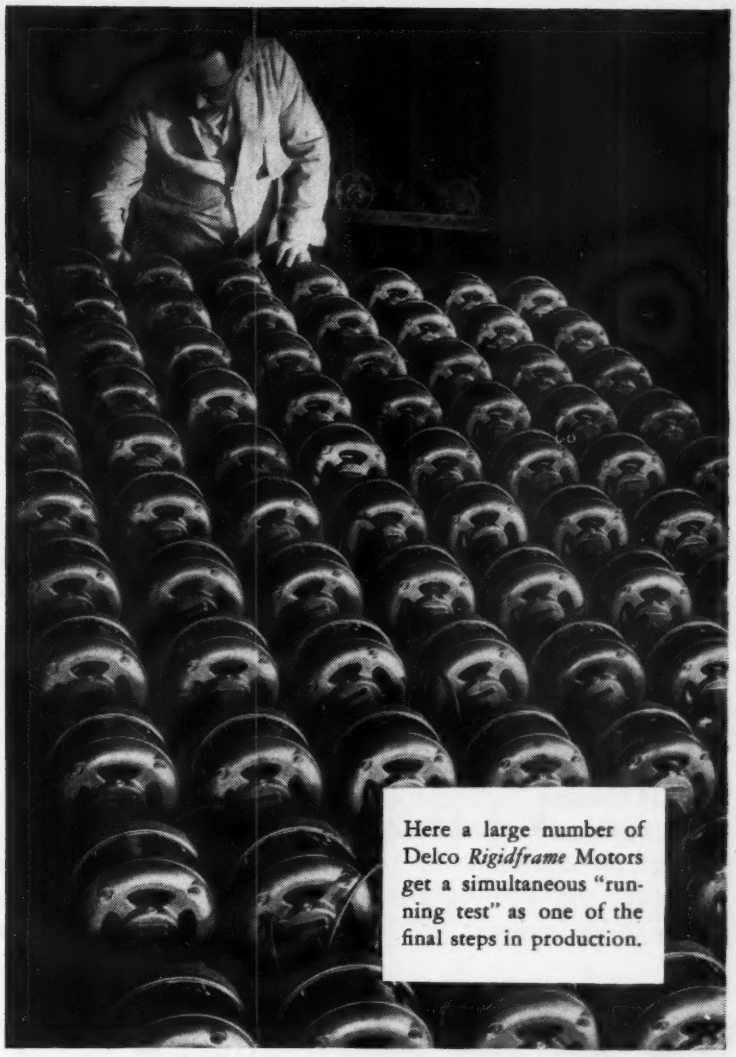
Himelblau, located at 5401 West Harrison St., will handle the Steinen line in northern Illinois, Wisconsin and the eastern portion of Iowa.

Wymbs appoints ten Hev-E-Oil Burner Outlets

A TOTAL OF TEN distributors have been appointed by Frank M. Wymbs, Sr. to handle Hev-E-Oil Burners made by Cleaver-Brooks Co., Milwaukee 12, Wis. They are: Allied Heating Co., Ltd., Toronto, Canada; Pepper's Stoker Co., Ltd., Toronto, Canada; Mark Kriluck, Ltd., Thorold, Canada; Frontier Refrigeration, Buffalo, N. Y.; Independent Gasoline & Oil Co., Rochester, N. Y.; Bobken Co., Inc., Syracuse, N. Y.; E. W. Tompkins Co., Albany, N. Y.; Wilcox & Ziegler, Inc., Baltimore, Md.; Central Fuel Co.,

Good automatic heat depends on good motors

Delco-Heat makes its own burner and blower motors right in the Rochester plant



Here a large number of Delco *Rigidframe* Motors get a simultaneous "running test" as one of the final steps in production.

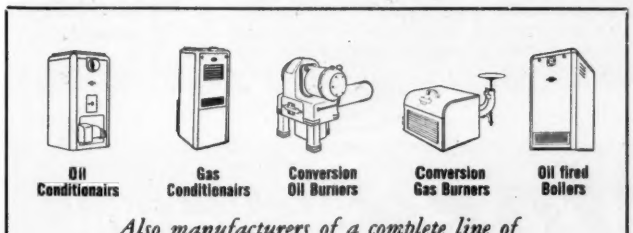
The Delco Appliance Division of General Motors Corporation is one of the country's largest producers of electric motors. It is this fact that enables Delco Appliance to make burner motors and blower motors that are *specifically designed and built for Delco-Heat units.*

The *Rigidframe* motor—an exclusive Delco Appliance production achievement—is the standard Delco-Heat burner and blower motor. Featuring a welded-strut design that replaces bolting or riveting of stator laminations, the *Rigidframe* motor is a rugged, efficient, and quiet operating power unit that is built for years of service.

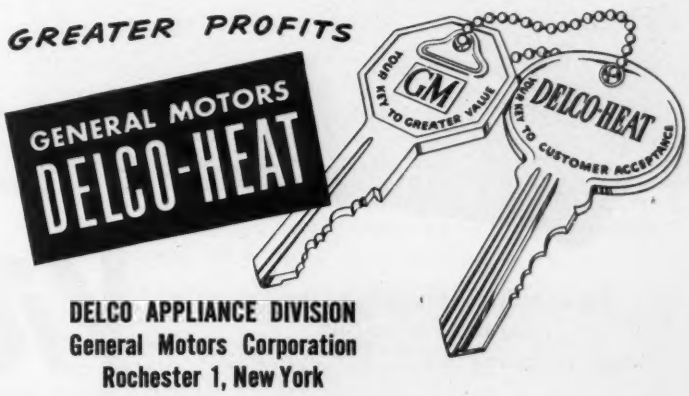
It is only natural that Delco-Heat engineers can design simpler and more efficient heating equipment, because they have such a large measure of control over the production of motors and other component parts.

And because Delco-Heat units are General Motors products, they are made by the world's greatest experts in mass-production techniques. Delco-Heat can offer units of top quality and unexcelled engineering features—at prices competitive with any in the industry. And Delco-Heat Retail Distributors, in turn, can offer their customers the very finest heating systems—at the lowest possible costs.

YOUR KEYS TO GREATER PROFITS



Also manufacturers of a complete line of electric water systems



DELCO APPLIANCE DIVISION
General Motors Corporation
Rochester 1, New York

Washington, D. C.; Dominion Fuel Oil Co., Richmond, Va.

The Hev-E-Oil Burner Distributors, New York, N. Y., now is being carried on by the Wymbs brothers, Frank, Jr., F. Carlton and Henry, while Frank Wymbs, Sr., is devoting his entire time to securing Hev-E-Oil Burner distributors.

Honeywell re-assigns Men To contact Manufacturers

SPFCIAL FIELD ASSIGNMENTS have been announced for four of its sales engineers by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., in a move to develop closer cooperation with heating equipment manufacturers. Thomas A. Reed, Robert R. Moore, George Keller and James R. Maxim have been promoted to new posts. They will make their headquarters in the Honeywell offices in Hartford, Columbus, Indianapolis and South Bend, each responsible for contacting manufacturers of heating equipment and supervising their accounts in his territory.

Mr. Reed joined Honeywell in 1946 after his discharge from the Navy and has held sales positions in several regional offices. Mr. Moore has been a sales engineer in the Detroit and home offices since coming to the company in 1947 after a term of military service in the Army. Mr. Keller, former district manager of the South Bend office, and now promoted to account executive, joined Honeywell in 1940, and Mr. Maxim, with the company since 1946, is transferred from Indianapolis to South Bend to succeed Mr. Keller as district manager.

Timken dealer Luncheon Held during Chicago Show

A FACTORY-SPONSORED LUNCHEON was held on April 5 at the Edgewater Beach Hotel, Chicago, by the Timken Silent Automatic Div., Jackson, Mich., during the Oil Heat Institute Exposition. Climax of the meeting was the presentation to T. A. Crawford, vice president and general manager, of a 40 by 60 in. telegram, congratulating him on his election to the presidency of the Oil-Heat Institute of America.

One of the new series *of animated and illuminated traveling displays prepared by Timken Silent Automatic Div., Jackson, Mich., for dealer use. Each display is made in "uni-pak" form, provides its own shipping crate when folded. Displays are supplied by Timken for special dealer showings at fairs, expositions and home shows.*

Mr. Crawford was principal speaker and announced the promotion of R. M. Marberry from advertising manager to merchandising manager. Mr. Marberry, who also spoke, outlined future plans pertaining to company sales ac-

VECO TROUBLE FREE Complete Combustion Testing

New-Revolutionary

CO_2 Analyzing Elements

(Sealed in Glass)

SINGLE METER — All readings on one dial Constant accuracy in service use.

3 IN 1 OPERATION

CO_2 INDICATOR
STACK THERMOMETER
DRAFT GAUGE

COMPACT PORTABLE
Weighs only 7 pounds

Service Free — Simple to Operate
Economical to Buy
Ideal for testing to F.H.A. requirements

Victory ENGINEERING CORPORATION
744 Broad Street, Newark, New Jersey
"MANUFACTURERS OF THERMALLY SENSITIVE RESISTORS"

Sentry

AT-A-GLANCE

REMOTE and DIRECT READING

TANK GAUGES

FOR BASEMENT TANKS: Type D-O for 2" openings, Type D-10 for 1½" openings.

For accurate, easy reading of tanks — indoors, outside or underground.

FOR UNDERGROUND TANKS: Type D-U, shown at right, for 2" openings only.

Left: Standard type At-A-Glance Gauge for direct reading at storage tank. Also available with special fitting for use and adaptation with remote gauge indicators to permit dual readings — both at tank and outside.

Dependable, Inexpensive, Weatherproof... Simple Mechanical GAUGES, Easy to Install

Accurately indicates liquid level in remote storage tanks at all times — Not affected by specific gravity oil changes or variations. Simplified mechanical operation eliminates unnecessary fittings, bulbs or levers for oil men to tamper with — no need for access to building. Can be installed for dual location readings — *indoors* and *out*. Non-corrosive stainless steel and brass extension lines connect tank float with cast aluminum, weatherproof, thermometer type indicator — calibrated in fractions. Easy to read, unconditionally guaranteed. Write for folder showing complete line.

KRUEGER *Sentry* GAUGES

GREEN BAY • WISCONSIN

---

designed for *Small Home* installations

the *TUCK-AWAY* *Boiler*

Koven venko packaged unit

IT'S COMPACT. The small home owner needs room —and more room—for gracious, comfortable living. Here's a beautifully finished tuck-away boiler that gives him that needed space. The Venko Packaged Unit can be installed in a cupboard, alcove or in other small spaces. Easy accessibility to all controls and operating parts is assured because they are conveniently grouped at the front of the boiler.

IT'S THRIFTY. The Venko Packaged Unit is a boon to your low income customer. It burns just enough fuel —no more. Heavy insulation prevents loss of heat—another saving of fuel. The Venko boiler is tops in efficiency too. Especially selected tested controls give quick response to calls for heat and domestic hot water. It's engineered with the same skill that has made KOVEN a leader in steel fabrication for over seventy years.

IT'S COMPLETELY PACKAGED FOR QUICK INSTALLATION. The Venko Packaged Unit is easy to install. The burner, chamber, circulator and operating controls are built in and properly wired at the factory and all other equipment is included in the package. There's no delay waiting for missing parts. The boiler is ready to install.

NATIONALLY ADVERTISED. Write today for literature that tells why you should recommend a Venko Boiler Packaged Unit for your next installation.

WATERFILM BOILERS, Inc.
A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.

tivities and stressed the Division's record-breaking national advertising for 1951. His statements were backed by a telegram from Walter F. Rockwell, president, Timken-Detroit Axle Co., parent organization, expressing confidence in the dealer's ability to develop new business.

Other speakers included G. W. Schultz, regional manager, who conducted the meeting and C. A. Cooper, assistant general manager, who reviewed manufacturing and production.

Sid Harvey holds two more Fuel unit service Schools

TWO MORE fuel unit service schools have been held by Sid Harvey, Inc., Valley Stream, N. Y., covering service tips on all makes and models of fuel units, including special and obsolete types. Sessions were conducted on April 23 and 24 by T. F. Rojecki in the American Legion Hall, Valley Stream, N. Y., open to all oilburner dealers, installers or servicemen.

A lecture and color slides were used to impart specific information on the selection of the proper model for inside and outside tank installations, as well as a simple, practical method for field testing a pump to determine if it is defective or not. Service problems covered included overcoming hum, afterdrip, pulsation, air and oil leaks.

Thermolok names three Sales Representatives

THREE NEW manufacturers' representatives have been named by Thermolok Mfg. Co., Brooklyn, N. Y., to handle its line of thermostat setting guards. The D. Halberg Co., Brooklyn, N. Y., will cover the metropolitan New York area; John Lordan, Boston, is representing the company in the six New England states and Cobin and Saxon, Philadelphia, will handle sales in Pennsylvania, Delaware and northern New Jersey.

The company also announces it is offering attractive three-color countercards free to all jobbers handling Thermoloks. The cards are oval-shaped, with easel backs, printed in the new Day-Glo process colors.

Allied Tank Truck Relocates Facilities

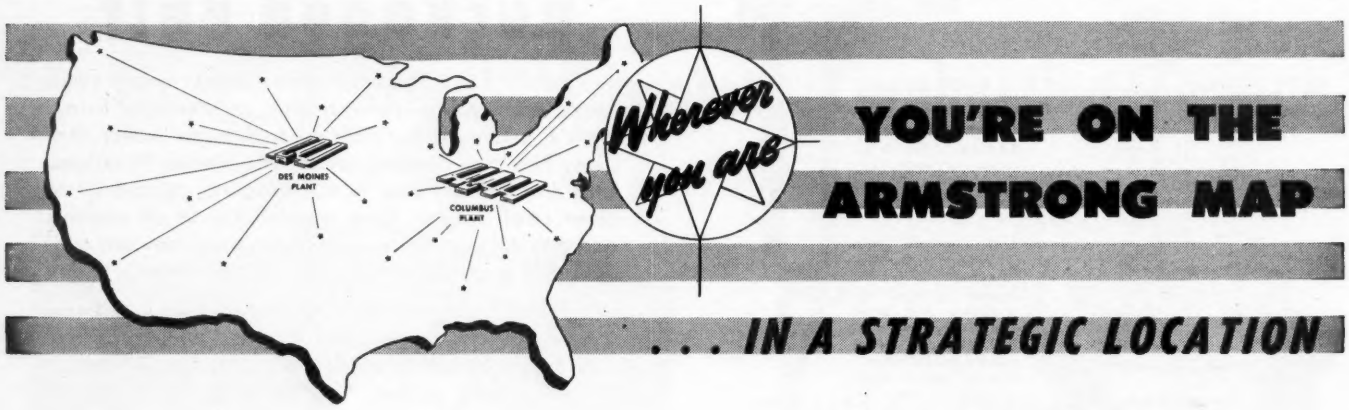
ALLIED TANK TRUCK EQUIPMENT CO., Philadelphia 30, Pa., now is occupying a new factory at 24th and Brown Sts., where considerably larger production facilities are available. Increased acceptance of tank trucks, made by Allied, have made the move necessary.

At the new location the company is continuing its policy of offering a complete range of remodeling, repairing and servicing.

Milwaukee Valve marks Fiftieth Anniversary

DURING APRIL the Milwaukee Valve Co., Milwaukee, Wis., celebrated its 50th birthday. Originally a manufacturer of standard brass valves and heating specialty products, since 1927, when Valentine Fina took over the company, Milvaco has concentrated its engineering efforts on being valve specialists.

One of its notable achievements was the development of a complete line of manifold and balancing valves, ranging



In days of short supply it's important that you get yourself into the best possible position in regard to the supply of the furnaces you sell. Important? *Essential!*

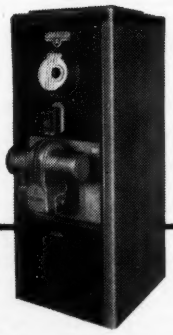
Look at the Armstrong distribution map. Two huge plants to serve both sides of the continent quickly, economically. A warehousing distributor within a stone's throw of everywhere. That means quick action on deliveries . . . a nearby inventory without inventory investment . . . close-at-hand engineering and sales help.

It's good to know, too, that Armstrong is trustworthy. We'll play fair with the steel we get. That's true if materials are assigned on the basis of past volume, present orders or future prospects. These materials will continue to be applied to a full selection of warm-air furnaces—for firing with oil, gas or coal.

Drop us a line. Make us *prove* how our system is made-to-order for the rough days ahead.

ARMSTRONG FURNACE COMPANY
COLUMBUS, OHIO — DES MOINES, IOWA

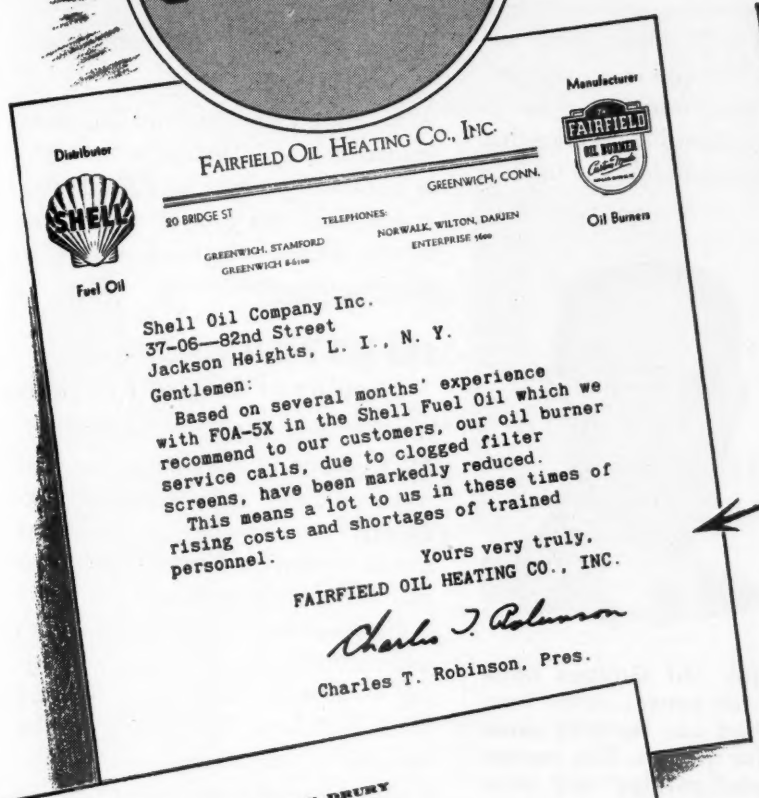
Please address Dept. FO at our plant nearest you
Warm-Air Furnaces—Oil, Gas, Coal—A Complete Line



The Ideal, Compact OIL FURNACE

Compact size is essential for utility-room installation, but so *are* efficiency *and* attractive appearance. They're *all* wrapped up in this Armstrong L6-110 Gun-Type Oil Hi-Boy. Powerful *twin* blowers assure effective heat transfer and distribution. First-class construction minimizes service needs. Write for specifications.

PROOF – that Shell Fuel Oil with FOA-5X is the answer to filter-screen clogging



Distributor — SHELL — Fuel Oil

FAIRFIELD OIL HEATING CO., INC.

20 BRIDGE ST — GREENWICH, CONN.

TELEPHONES: GREENWICH, STAMFORD GREENWICH 8-6100 — NORWALK, WILTON, DARIEN ENTERPRISE 3600

Manufacturer — FAIRFIELD OIL BURNER — Oil Burners

Shell Oil Company Inc.
37-06—82nd Street
Jackson Heights, L. I., N. Y.

Gentlemen:

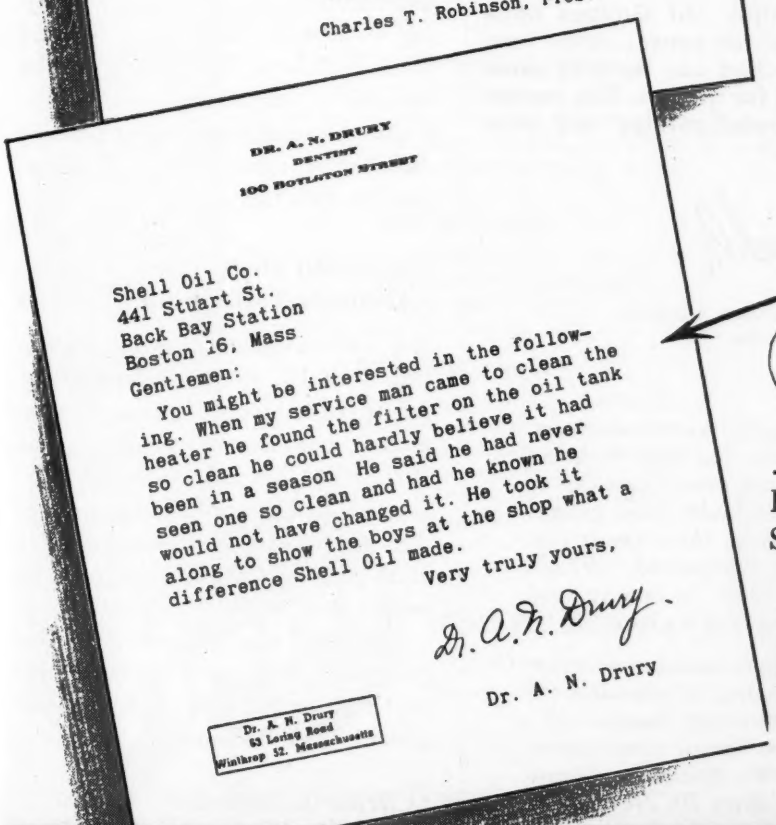
Based on several months' experience with FOA-5X in the Shell Fuel Oil which we recommend to our customers, our oil burner service calls, due to clogged filter screens, have been markedly reduced.

This means a lot to us in these times of rising costs and shortages of trained personnel.

Yours very truly,
FAIRFIELD OIL HEATING CO., INC.
Charles T. Robinson
Charles T. Robinson, Pres.

– from a distributor

Note that Mr. Robinson says his service calls have been markedly reduced . . . *and that means lower operating costs.* It also means satisfied customers.



DR. A. N. DRURY
DENTIST
100 BOYLSTON STREET

Shell Oil Co.
441 Stuart St.
Back Bay Station
Boston 16, Mass

Gentlemen:

You might be interested in the following. When my service man came to clean the heater he found the filter on the oil tank so clean he could hardly believe it had been in a season. He said he had never seen one so clean and had he known he would not have changed it. He took it along to show the boys at the shop what a difference Shell Oil made.

Very truly yours,
Dr. A. N. Drury
Dr. A. N. Drury

Dr. A. N. Drury
63 Loring Road
Winthrop 52, Massachusetts

– and from a customer

. . . a voluntary letter, summed up in the last sentence, ". . . what a difference Shell Oil made."

These two examples show how Shell Fuel Oil with FOA-5X brings a basic reduction in expense to dealers in fulfilling their annual oil burner service contracts.

SHELL

SHELL FUEL OIL *with* FOA-5X

from a single control balancing valve to a 5-valve unit, whereby various manifold combinations can be set up without employing extra fittings and joints. In addition, the company has worked out a full range of petroleum valves and fittings.

Physical expansion has accompanied the growth in engineering leadership so that Milvaco's plant now occupies two acres and includes a new foundry and a new machine shop. Sales offices stretch from coast to coast and are located also in Canada and Mexico.

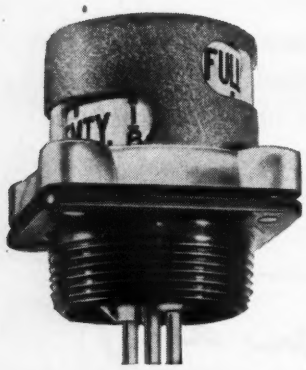
Toridheet window Display Features life-size Model

AS PART of an expanded advertising and merchandising program, the Toridheet Div., Cleveland Steel Products Corp., Cleveland, Ohio, is furnishing its dealers with an attractive, lithographed easel window display. Featuring a life-size model, the display is used with a Toridheet automatic heating unit, intended as a "stopper" to catch transient traffic.

The display highlights a caption that says, "It's a pleasure to wake up in a

warm home with Cleveland Toridheet automatic heat." Dealers report highly satisfactory results with the display and regard it as a valuable supplement to the division's national newspaper and magazine advertising.

"WE'RE SOLD ON Rochester GAUGES!"



"Rochester 'Dual-Dial' Oil Gauges have been our 'stand-by' for years. After long periods of use we find our records show no service charges for gauges. This means better customer relationships and economical operation."

Earl L. Kunkle

EARL L. KUNKLE, R. L. Stott Company
Oil Burner Sales and Service
Philadelphia, Pa.

The R. L. Stott Co. has been serving three heavily populated Pennsylvania counties for over 25 years. Experience has sold them on the complete dependability and positive leak-proof feature of Rochester "Dual-Dial" Oil Tank Gauges. They know these gauges can't leak oil or vent fumes, even under pressure. As a result customers are satisfied. Costly service calls are eliminated. What's more the large, magnetically actuated "Dual-Dial" is easy to read from both front and back—indicates the oil level at a glance.

Ruggedly built, easy to install Rochester Gauges have been Underwriters' listed for over 25 years. Stocked by leading wholesalers for basement oil burner storage tanks in the following depths—22", 24", 27", 42", 44", and 47"; 1½" and 2" pipe thread connections. Special lengths to order . . . STOCK UP NOW. Rochester Manufacturing Co., Inc., 19 Rockwood Street, Rochester 10, New York.

ROCHESTER MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS
ROCHESTER DEPENDABLE ACCURACY GAUGES

Haydon Products acting as Supplier of Aerocor Fiberglas

HAYDON PRODUCTS CORP., Brooklyn 15, N. Y., designers and manufacturers of metal products, including boiler jackets, has been named to act as the local source of Aerocor Fiberglas, made by the Owens-Corning Fiberglas Corp.

Haydon has set up a new division to make available to customers warehousing services of Fiberglas, in roll and fabricated form. The supply of this material is critical and it is the announced intention of Owens-Corning and Haydon to cooperate as closely as possible with users.

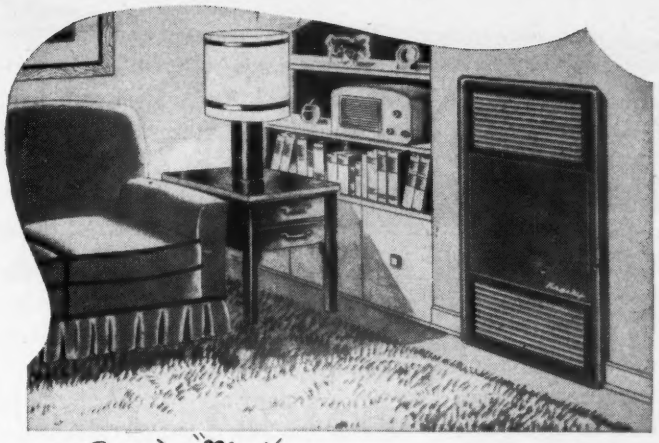
Parke-Hill distributing Through York-Shipley Outlets

THE APPOINTMENT of York-Shipley, Inc., York, Pa., as exclusive distributor for its entire line of boiler room compounds, has been announced by the Parke-Hill Chemical Corp., Mt. Vernon, N. Y. The products will be handled by the York-Shipley distributors and dealers of domestic and industrial heating units.

Parke-Hill also announced the appointment of Bernard Mattie as district representative for eastern Pennsylvania and southern New Jersey.

O'Brien is eastern Outlet for Rock-Tite

ROCK-TITE STONE tank linings are handled by O'Brien Steam Specialty Co., Inc., Syracuse, N. Y., who acts as eastern representative for its manufac-



Compactness and Big Heat Output Help Sell Kresky

What a Line!

FLOOR FURNACES
•
WALL FURNACES
•
FIREPLACE FURNACES
•
BASEMENT & UTILITY FURNACES
•
SPACE HEATERS
•
RANGE CONVERSION BURNERS
•
STORAGE WATER HEATERS
•
AUXILIARY WATER HEATERS
•

Today's home owners want more space and plenty of heat. They get both with **Kresky Oil Wall Furnaces.** These new Kresky units fit into the wall, out of everybody's way. Their big 62,500 BTU output keeps the whole house warm.

HEAT UNCONNECTED ROOMS

A single Kresky Oil Wall Furnace can put heat directly into unconnected rooms or separate sections of the home. Flow of heat may be directed entirely to one side or divided equally between both sides.

EASY TO INSTALL

Kresky Oil Wall Furnaces are easy...inexpensive to install. No ducts are needed. Framing is simple. Installation can be delayed until final building stages when other work is done.

FIT MODERN HOMES

These new Kresky wall units are perfect for homes with concrete slab floors, or for upstairs installations. Their gleaming ivory-enamelled panels add a touch of luxury that enriches any home.

Kresky OIL HEATING

KRESKY MFG. CO., Inc.
2nd & H Streets
Petaluma, California

Mail Coupon Today!

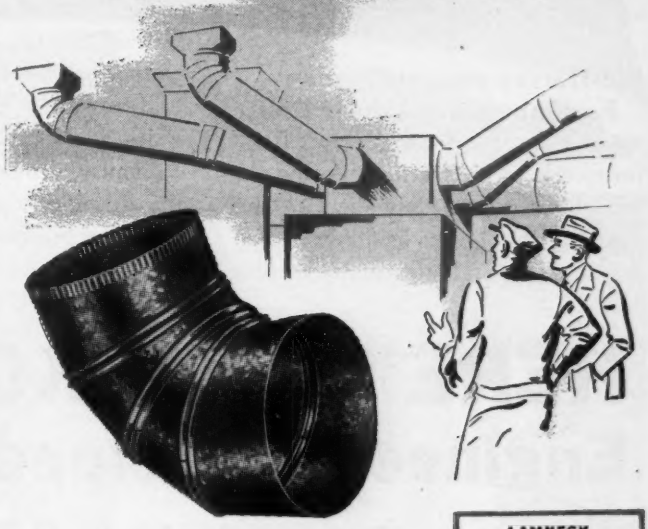
KRESKY MFG. CO., INC. (551-FOH)
2nd & H Streets, Petaluma, California

☐ Send me complete information on the Kresky line.
☐ I am particularly interested in _____.

NAME _____

ADDRESS _____ CITY _____ STATE _____

Lamneck invites comparison



the best costs less..

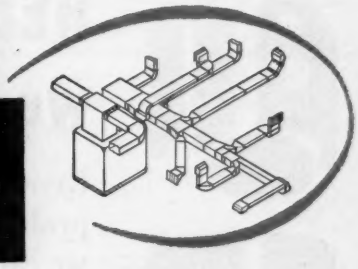
LAMNECK	
4 Piece ADJUSTABLE ELBOW	
24 Ga. 6 Inch	73¢
Not to dealer at his jobbers	

By every standard of measure, Lamneck will stand comparison. Elbows are constructed from Premium Quality Galvanized Steel—*tested* for adjustability before ever leaving the factory—*designed* so that the small end is tapered to form a snug air tight connection without loss of effective area.

Yes, all we ask is that before you buy, compare Lamneck with any other fittings in price, quality and design. *(Due to critical shortages of steel, jobber's stocks may be low on some items at this time.)*

LAMNECK MAKES A COMPLETE LINE OF FURNACE PIPE & FITTINGS

Simplenic SYSTEM
T.M.
Lamneck
FURNACE PIPE & FITTINGS



Another Great C&L Product

Write for free comprehensive Lamneck Catalog and the industry's latest book "Standardized Fittings."

CLAYTON & LAMBERT MFG. CO.
Louisville 10, Kentucky

turer, Charles J. Riley & Sons, Chicago.

Rock-Tite linings, described on page 135, April issue, are designed for the rehabilitation of pitted, leaky or over-aged storage tanks of all types.

Sid Harvey announces plans For June annual open House

SERVICE for the General Electric oil furnace is to be featured during the 6th annual open house and trouble shooting school to be held every Monday, Tuesday and Wednesday in June by Sid Harvey, Inc., Valley Stream, N. Y. Offered without charge to service personnel, reservations are required and may be secured by making application on company letterheads.

A practical demonstration of the G-E oil furnace, wired to simulate operating conditions, has been prepared to be used in a lecture illustrated with slides.

Similar demonstrations will cover the diagnosis and correction of fuel unit, combustion relay, control and transformer troubles.

The open house is an annual affair Sid Harvey conducts, including personally conducted tours of factory facilities, a lunch and afternoon session.

Hydrovalve occupies new Building; issues Catalog

HYDROVALVE CO. has moved to new quarters at 1319 Utica Ave., Brooklyn 3, N. Y., occupying a 30 by 100 ft. building.

The company also has issued catalog No. 51, covering engineered oilburner replacement parts. The complete line shown, includes a variety of seal-tite gaskets for Webster, Detroit, Sundstrand, Delco and Tuthill fuel units, and a series of replacement parts for Webster and Delco units. A group of tools for oilburner service work consists of a Detroit bellows wrench, a Sundstrand seal wrench, quick-test gauge adaptor and an all-angle holding jig for securing fuel units in a vise. Also shown is a group of heavy duty electrodes, to be used in service and replacement work on all popular makes of burners.

Coleman launches major Program of Expansion

AFTER A NEAR RECORD YEAR in 1950, during which the company celebrated its 50th anniversary, The Coleman Co., Inc., Wichita, Kan., has announced a two million dollar expansion of production facilities. This program will enable the company to increase deliveries of military equipment and assure substantial quantities of consumer goods. It anticipates sales for 1951 will equal 1950, with deliveries of military equipment offsetting the decrease in civilian products resulting from defense mobilization.

Coleman already is working on military contracts totaling several million dollars, including oilfired tent heating stoves, and is continuing research and development work for the Armed Forces in the field of cooking and heating equipment. The company contemplates the continued manufacture of its entire line of regular civilian products.

Expansion of facilities will extend to Canada, where The Coleman Lamp and Stove Co., Ltd., with two plants in Toronto, produces home heating equipment and other appliances.

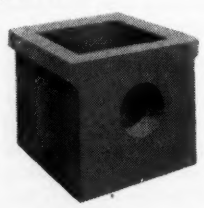
HERE'S how KOLB Engineering Helped . . .

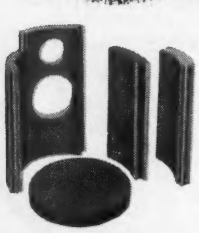
WATERFILM BOILERS
Jersey City 7, N. J.

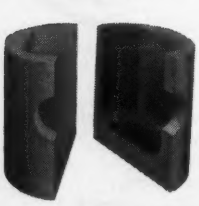
Dear Mr. Kolb:
The Kolb Kast chambers were carefully chosen as a component part of the Venko quality packaged unit because of the excellent combustion results obtained from their use.

Very truly yours,
WATERFILM BOILERS, INC.

A. R. Hanson







HERE'S how we can help YOU too:

Give us your toughest combustion chamber problem. Our engineers will show you how we can solve it. *Write today to* —

KOLB REFRACTORIES COMPANY
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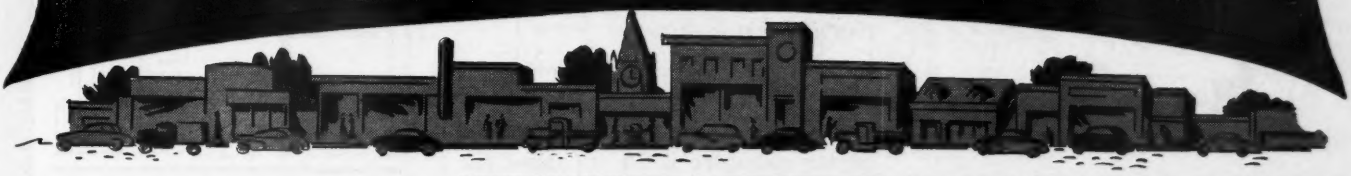
KolbKast Shapes • KolbKast Insulated Shapes

THE GREAT WHITE LINE



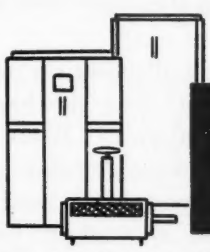
YORK-HEAT DEALERS ARE MAKING MORE SALES

York-Heat dealers from all sections of the country are reporting increased sales in 1951 because of York-Heat's Great White Line—64 models, all dazzling white—and with York-Heat down-to-earth merchandising program using the Sales Visualizer which takes each unit apart to show the homeowner what makes York-Heat America's finest automatic heat. And York-Heat dealers are making money.

These are actual photos from dealer's showroom of group at introduction of York-Heat's Great White Line.

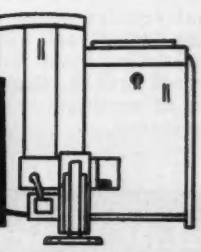
YOU TOO CAN MAKE MORE MONEY WITH THE YORK-HEAT LINE

There is a place in the York-Heat distributor dealer organization for you—if you want to make more money in 1951 and the years to come. Write us today for franchise details and the York-Heat Profit Story. York-Shipley, Inc., Dept. 5, York, Penna.



A PRODUCT OF YORK-SHIPLEY, INC., YORK, PA.

YORK ¼ HEAT



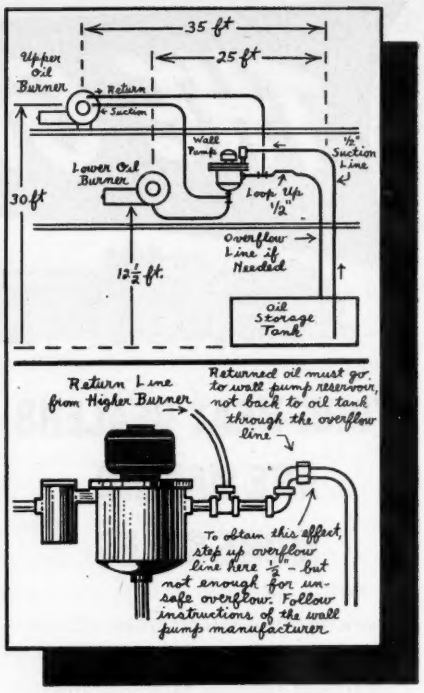
Oil and Gas-Fired Boiler Units, Winter Air Conditioners and Burners—Gas and Electric Water Heaters—Oil and/or Gas Fired Steampak Generators and Industrial Burners.

Readers' Problems

Q. Will you please send me as soon as possible a piping diagram together with pipe sizes working two oilburners using #2 oil from one buried tank firing into two separate Dravo direct-fired heaters, arranged as my accompanying sketch shows?

S. O. B. L., Jamaica, N. Y.

A. Use a wall pump because the higher oilburner is 30 ft. above the bottom of the oil tank. The wall pump may be between 18 and 22 ft. above the bottom of the oil tank. The higher


35 ft
25 ft
Upper Oil Burner
Return
Suction
Wall Pump
½" Suction Line
Lower Oil Burner
30 ft
Loop Up 1½"
Overflow Line if Needed
12½ ft.
Oil Storage Tank
Return Line from Higher Burner
Returned oil must go to wall pump reservoir, not back to oil tank through the overflow line
To obtain this effect, step up overflow line here ⅛" - but not enough for unsafe overflow. Follow instructions of the wall pump manufacturer

burner, 8 to 12 ft. above the wall pump, will draw oil from it using a suction line and a return line as our drawing indicates. Be sure to use a return line for the higher oilburner. Arrange the return line so that the oil from it goes into the wall pump reservoir, not to the outside oil tank. Our lower drawing suggests one method that may be used. Other ideas can be used to gain the same effect.

The lower oilburner may obtain its oil by gravity from the wall pump, as our drawing shows, if you use a wall pump of capacity sufficient to supply both oilburners. Gravity-fed this way, the lower burner needs no return line and can be given oil by a ⅜" copper tube line.

On the other hand, if you prefer you can connect the lower burner to the outside tank directly, providing it with its own suction line and return line; its suction line would be independent of the suction line used for the wall pump, but the overflow line of the wall pump (if an overflow line is used with the particular wall pump you install) could be used as the return line for the oilburner.

If you use the wall pump for only the higher burner, then the lower burner must lift oil up to 12½ ft.—it should have a two-stage pump, according to some experts, if the particular burner model is available with either one-stage or two-stage fuel

IN HAND PUMPS...
AS IN TRUCK PUMPS
BLACKMER *leadership*
is Performance PROVED!

Blackmer offers the world's largest line of time-tested, dependable hand pumps of finest quality for every requirement.

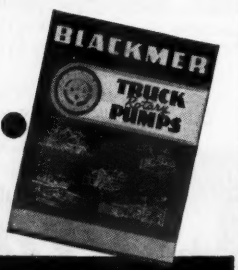
FOR MORE THAN 45 YEARS Blackmer Pumps have been most consistently favored by "oil men." With minimum care, Blackmer Pumps outlast all equipment with which they are used. You can get no better pumps than Blackmers for your petroleum-handling needs.

BLACKMER PUMPS lead all others in design improvements in truck pumps. With Blackmer Pumps oil marketers invariably gain profitable delivery time and lower operating costs, thereby increasing profits.

Blackmer "single" truck pumps in 40, 60, 100 and 200 GPM capacities feature NEW QUIET "self-adjusting for wear" NON-METALLIC vane construction.

Blackmer "dual" truck pumps in 40, 60 and 100 "twin" capacities meet legal requirements in handling "split load" deliveries efficiently from compartmented trucks. Contamination of products is entirely eliminated.

WRITE FOR TP3 BULLETIN CONTAINING DETAILS OF BLACKMER TRUCK PUMPS



BLACKMER PUMP COMPANY GRAND RAPIDS, MICHIGAN

"Clara, I'd go home to Mother right now—only she doesn't have Atlantic Triple-Refined Heating Oil!"

Triple-refining makes life easier!

Atlantic Heating Oils are *triple*-refined —a special process that assures maximum conversion to heat, and cleaner burning. Customers' lives are easier— they save on fuel costs and repair bills. *Your* life is easier with lower service costs!

TERMINALS AT:

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New Haven, Conn.	Akron, Ohio	Salisbury, Md.
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Binghamton, N. Y.	Altoona, Pa.	Charlotte, N. C.
Buffalo, N. Y.	Greensburg, Pa.	Greensboro, N. C.
Elmira, N. Y.	Johnstown, Pa.	Wilmington, N. C.
Rochester, N. Y.	Mechanicsburg, Pa.	Spartanburg, S. C.
Syracuse, N. Y.	Northumberland, Pa.	Brunswick, Ga.
Wayland, N. Y.	Philadelphia, Pa.	Rome, Ga.
Newark, N. J.	Pittsburgh, Pa.	Griffin, Ga.
Trenton, N. J.	Reading, Pa.	Jacksonville, Fla.
Gloucester, N. J.	Williamsport, Pa.	Port Everglades, Fla.
Bridgeton, N. J.	Wilmington, Del.	

ATLANTIC
HEATING OILS

units. It needs the best in suction line check valves to prevent loss of prime.

* * *

Q. The job I'm inquiring about has a pressure burner firing 14 gph from one nozzle, and a cast-iron hot water heating boiler.

The trouble is a formation of carbon about a foot in diameter and about four inches thick on the side of the combustion chamber. Also, when the burner stops fire continues to burn between the brick in the floor of the chamber.

The fire is very clean on one side and smoky on the other.

I tried different degree nozzles with no results.

I would appreciate information on the matter.

M. C. J. H., Westfield, N. J.

A. The trouble simply lies in impingement of oil droplets on the floor of the firebox and the side which collects carbon. If this is not caused by the nozzle's squirting oil downwards and sideways, it is caused either by (a) the side walls and floor being too close to the heart of the flame, or (b) the nozzle's being cocked downwards and to one side, causing the oil to spray crooked and downwards.

There's one more possibility, remote and not easy to check on. The air-handling parts in the gun tube of the burner may be tending to give a flame too wide for the particular firebox, regardless of which nozzle you install. Switching to entirely different air-handling parts, which make the burner give a narrow flame, called a dog-tail flame by some service men, may end the trouble.

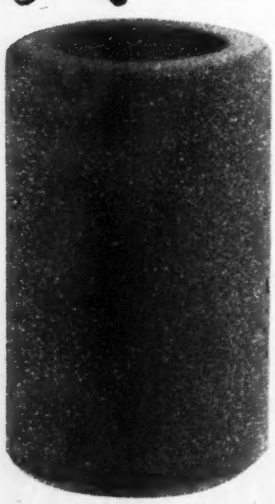
Take a try at ending the trouble quickly by bending the oil line that feeds the nozzle. About half an inch behind the nozzle adapter, bend this line upwards and towards the side of the firebox which has no carbon formation. Be careful not to wind up with an oil leak at the adapter. Check the electrode setting.

* * *

Q. In adjusting jobs for continuous air circulation and changing to smaller nozzles, how much smaller nozzle can be used without changing to smaller combustion chambers? Will CO_2 tests show loss of efficiency if combustion chamber is too large?

F. V. D., Butte, Nebr.

A. You can cut the gph rates of many jobs by 25% without worrying about the fireboxes. You are right about the combustion tests. If the maximum CO_2 with smoke-free, clean burning is 10% to start out with, but is 7% after you cut the firing rate, for example, of course the combustion quality has been reduced by dropping the gph rate without making the firebox smaller. Specifically, the ability to produce a high CO_2 reading has been impaired. However, you mention a drop in efficiency. Actually the efficiency may not be reduced because of the lower stack temperature that accompanies the lighter firing. You should have handy light-weight, insulating firebrick to use for reducing firebox dimensions when you cut the gph rates greatly, however. You can apply these easily not only for making fireboxes shorter, but also for making the side walls higher



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—and only KLEMM has CHEMISTONE (the original controlled porosity element).

Your customers will be quick to see the advantages of this superior filter. Right now is the time for you to stock KLEMM FILTERS so that every salesman can take one with him on summer service calls. Write today for special introductory offer.

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Yes, here's your "in" to increased business and profits! The famous Grand Rapids Furnace Cleaner not only gets you into the customers basement but gives you an excellent opportunity to check over each heating plant as it is cleaned.

The Grand Rapids Furnace Cleaner puts you right where you can naturally recommend and sell necessary repair work and new installations.

The proven sales plan "A Plan to Increase Your Sales" leads the way to profits! The right to use this manual is reserved to users of the Grand Rapids Furnace Cleaner.

Write for free information today!

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233 Stevens St., S.W. Grand Rapids 7, Michigan

LATEST G-E CONTRIBUTION to the field of automatic warm air heating is the new G-E Automatic *Air-Wall* Register, pictured at right under window. It's truly automatic. The built-in thermostat operates a damper which modulates the flow of warm air to the room to compensate for fireplaces, large glass area and similar factors which otherwise create difficult heating problems.

THIS NEW G-E PACKAGED AIR CONDITIONER (Type FE), left, combined with the G-E Oil Furnace (Type LB) offers year 'round comfort to the home owner—year 'round business to the General Electric dealer. Either unit can be separately installed to fit existing ductwork.

G-E OIL HEAT

Three reasons stand out for the rapid sales growth of General Electric's Oil Home Heating Equipment—1. good products and *new* products, 2. strong advertising and sales promotion, and 3. a name known and respected by millions.

Thousands upon thousands of home owners throughout the country now enjoy the comfort, convenience and economy benefits of G-E Oil Heating Equipment.

Today the demand for G-E Oil Heating Equipment by builders and home owners is greater than ever before.

G. E.'s "Climate Engineers"...the product planners, the designers and the producers...offer many new developments, such as G-E *Air-Wall* Heating, which gives both radiant and warm air heat, and the G-E year 'round air conditioning system, for automatic summer and winter comfort. These new products open new market horizons for G-E dealers.

The G-E name plus proven customer satisfaction helps G-E dealers build increasingly profitable sales leadership. Complete and up-to-date sales tools are available and consumer acceptance is further assured by the current national advertising program, the biggest in the department's history—aimed to make prospects "look at G. E." before they buy.

And remember that G. E.'s *single responsibility* stands behind *all* G-E Oil Heating Equipment. General Electric Company, Air Conditioning Department, Bloomfield, N. J.

IN THE REPLACEMENT MARKET and in new construction, the compact G-E Oil Boiler (Type LA) has proven outstandingly popular for many years. Major selling feature is famous G-E economy. This G-E advantage results from a unique design which gets more "heat mileage" from every gallon of fuel oil. Six models from 100,000 to 450,000 Btu output per hour.

NATIONAL ADVERTISING in *The Saturday Evening Post* and Sunday Magazines tells millions about G-E Oil Heating Equipment. Complete product literature and sales training are available to G-E dealers and their salesmen.

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GENERAL ELECTRIC

"Prove the Need and the Sale Takes Care of Itself!"

FOR ACCURATE INFORMATION ON RELATIVE HUMIDITY and TEMPERATURE . . . RELY ON

Bendix-Friez

When your customers see the facts and figures, your selling job virtually disappears. With precision-made, dependable Bendix-Friez instruments you can demonstrate with on-the-spot readings or recordings exactly how much and where your customers need temperature and humidity control for maximum comfort in the home, maximum efficiency in industrial operations. Bendix-Friez instruments are built to U. S. Weather Bureau standards by the world's oldest and largest manufacturer of fine meteorological equipment. Write for complete information.

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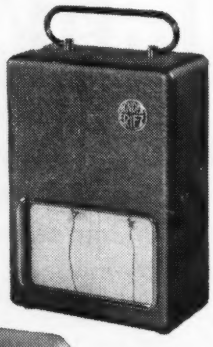
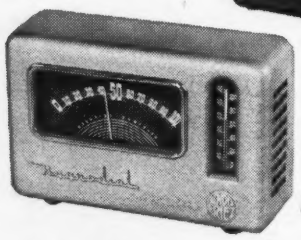
MODEL 160

Portable Humidity and Temperature Recorder

3" x 5" charts, 10 or 30 hour records. Modern design . . . handy for small space and difficult locations . . . built to meet unusual conditions.





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Precision Humidity and Temperature Indicator

Hair-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 5½" wide, 1⅝" deep—desk or wall mounting.

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Bendix AVIATION CORPORATION

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. . . . more Problems

speedily, where this gives cleaner and more efficient combustion, and for making the back walls higher and providing them with corbel or step-in arrangements so that they overhang the flames. Such arrangements, together with the higher side walls, often are needed to obtain clean, efficient combustion from very small flames. Otherwise the small flames tend to be too cool, and the combustion may not be clean and complete.

* * *

Q. In regards to Mr. Anthony C. Walaity's combination steam and hot water job illustrated on p. 71 of the November issue:

What keeps the boiler water line at the proper level? I mean the radiators being above the boiler water line, what keeps the boiler and steam piping from filling up?

I have a problem very much similar to this and would appreciate an early answer.

A. C. W., Coatesville, Pa.

A. All the water-filled piping and radiation above the boiler waterline must be absolutely tight, free of air leaks. The water can't drop down into the boiler because no air can enter this piping and radiation.

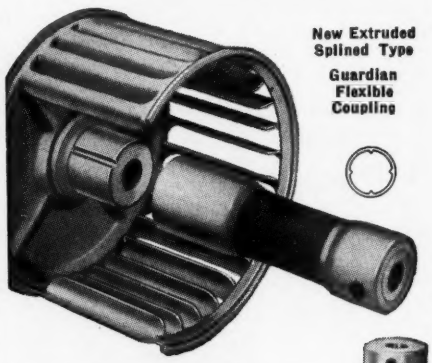
This may make the principle clear to you. Fill a quart gingerale bottle and a pail brimful of water. Keeping your thumb tightly over the opening of the gingerale bottle, turn it upside down, put its opening an inch under the level of water in the pail, then take your thumb off its opening and hold the bottle in that position. Though upside down, the bottle will stay full of water because no air can enter it; submerged under the water in the pail, the opening is water-sealed.

Using Mr. Walaity's idea, there's a suction or vacuum in the radiators above the boiler waterline when there's no steam pressure in the boiler. A vacuum gage on one of the radiators would show this vacuum; opening a manually operated vent valve on one of the radiators would cause air to enter the radiator. However, you can air-rid the radiators in the way described in the item you read. Raise five pounds steam pressure in the boiler.

5 WAYS BETTER

Guardian

FLEXIBLE COUPLINGS



New Extruded Splined Type Guardian Flexible Coupling

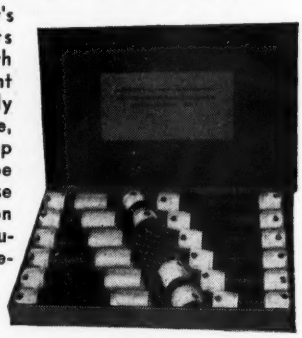
- EASILY INSTALLED
- MORE RUGGED
- TROUBLE FREE
- CLOSEST TOLERANCE
- QUIET OPERATION

Regular set screw type

You'll see why there is such a growing demand for Guardian flexible couplings when you use them on your first installation. The new extruded splined type can be installed easily in nothing flat. It fits to close .001 inch tolerance. Ruggedly constructed and specially treated to resist oil, Guardian couplings give the utmost in trouble-free performance. A variety of standard sizes or to your specifications.

GET THIS CONVENIENT COMPLETE SERVICE KIT

97% of today's requirements can be met with the assortment in this handy kit. Get one, use it and keep it filled to be ready for those extra profits on flexible coupling replacements.



WRITE FOR BULLETINS on the Guardian line of valves for water, oil heat and radiant panel installations.

Guardian PRODUCTS CORP.
COUPLING DIVISION

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Michigan City, Indiana

a major reason why **ABC** is

"The Standard of the Industry"

ABC Oil Burner ®

Every part of an ABC Oil Burner is fabricated of the finest materials . . . . each undergoes exhaustive tests for flaws and defects . . . all are precision built to provide smooth, uninterrupted performance. **America's leading oil heating manufacturers equip their units with**

ABC OIL BURNERS

AUTOMATIC BURNER CORPORATION

1823 CARROLL AVENUE • CHICAGO 12 • ILLINOIS

. . . . Readers' Problems

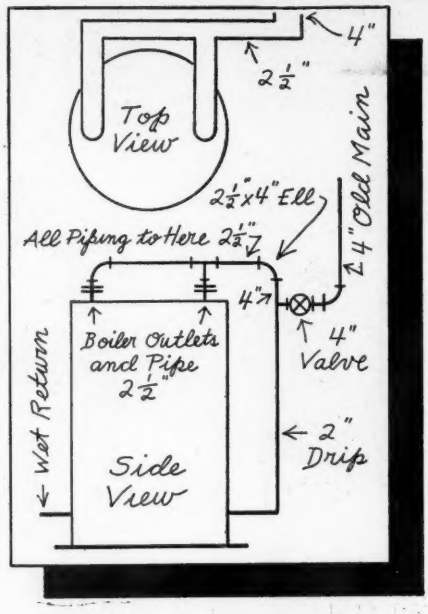
Properly applied and with all the radiators and their piping air-tight, this trick idea works well and gives exceptionally high temperatures for the hot water radiators. Yet, as the idea is tricky, some equipment dealers prefer to use instead the orthdox and dependable method of heating hot water radiation by a steam boiler, which includes installing a heat exchange (similar to a large tank-type indirect water heater) at the boiler. They would use the regular feed and relief valves, and basement expansion tank, for the hot water radiation system. We suggest that before making up your mind, you consider both methods for heating the radiators.

* * *

Q. We have a problem which we wonder if you might help us with.

Recently we installed an oil-designed vertical dry tube boiler with steam piping as per rough sketch attached. Boiler will not heat two small unit heaters and one 25 sq. ft. radiator.

Will a trap in steam main cause this? Can this trap be used to get a dry steam?



Boiler tappings are 2½". Steam main is 4" with 2" wet return. We used two 2" check valves insead of a Hartford loop because these boilers lose water so rapidly through returns.

Any help you may give us will be greatly appreciated.

H. S. D. L., Hobart, Indiana

A. This answer is late because time was spent trying to figure out just what you mean by a trap in the steam main. It seems now, however, that regardless of how the main is trapped or fitted with a trap, the trap cannot be the cause of the boiler's failing to carry its load properly. The reasoning behind this is that the trap you mention is not permitting steam or water to escape from the system, or you would mention that it is doing this.

You ask if a trap can be used to get a dry steam. Yes, a thermostatic trap or bucket trap might be used at the low end of a steam main, or where water tends to collect in a steam main, to permit water to escape from the steam main and flow to the return system and the boiler. Draining the steam main of condensate in this way, such a trap may be serving to provide dry steam for the unit heaters and radiator.

Your big problem seems to lie in the fact that the boiler cannot carry its full load, does not develop a few pounds of pressure with the burner running steadily for perhaps two

The
PORTMAR
Residential Double-Duty
BOILER
Gives your customers Economical Heat and Year-Round Automatic Domestic Hot Water

Manufacturers! Jobbers!

Steam from 320 to 1100 ft.
Hot water from 510 to 1760 ft.

PORTMAR has designed and manufactured this exceptionally fine double-duty boiler to satisfy your customers' most exacting demands.

Check these selling points!

- √ Combined Boiler and Hot Water Heater
- √ Built for Oil or Gas Firing
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- √ Attractively Priced
- √ Tastefully designed
- √ Extended and Flush Jackets
- √ Economical to Operate
- √ Heavy Gauged Steel Tubes Insure Long Life of Boiler
- √ Flush Jacket Boilers where Minimum Space is Required

PORTMAR BOILER CO., INC.
193 - 7th STREET BROOKLYN 15, N.Y.

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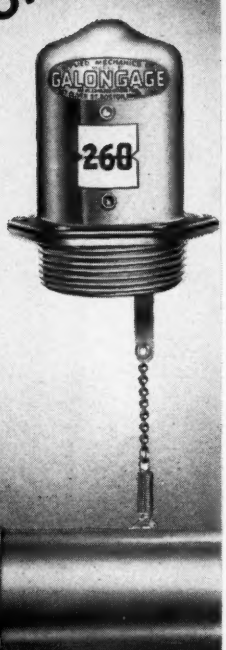
FOR TOP PERFORMANCE



Galongage is designed to meet the most exacting requirements and do credit to the finest installation. Quality construction practically eliminates unprofitable service calls and bothersome adjustments.

When making replacements or checking oil burners install Galongage for greater efficiency and customer satisfaction. Approved by Underwriters' Laboratories.

Write today for full particulars.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

ANCHOR

offers a franchise never before equalled in the heating field!

THE NEW ANCHOR FRANCHISE

The new Anchor franchise sets a new standard of relations between manufacturer and dealer. Many advantages and extra-profit features are incorporated in the Anchor agreement to help you make more sales . . . greater profits . . . than ever before.

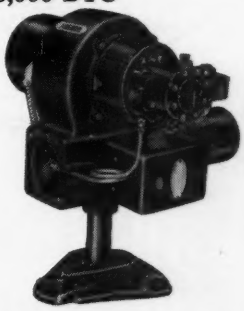
Mr. Bryant Doty of Anchor Says:

"I've never before seen a dealer opportunity to match this new Anchor set-up. Get the facts today! Just mail the coupon (below) and I'll do the rest."

A Furnace Line that's REALLY Complete

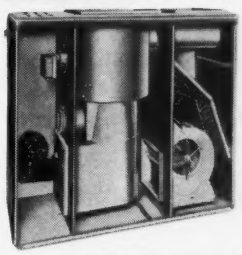
Hi Boy Models
Lo Boy Models
For Vaporizing Oil
For Hi-Pressure Oil
Forced Air Types
Gravity Types
From 59,200 to 148,000 BTU

An Oil Burner for Every Job



A Product That's RIGHT!

The new Anchor oil furnace is the finest in our history. Nothing on the market today can match it for beauty, economy, performance and durability.



ANCHOR

DIVISION OF STRATTON & TERSTEGGE, INC.
Box 311 • New Albany, Indiana

ANCHOR DIVISION, Stratton & Terstegge Co., Inc.
P.O. Box 311, New Albany, Indiana

Gentlemen: Please send complete information about an Anchor franchise in my territory.

NAME_____

ADDRESS_____

CITY_____ STATE_____

Fuel oil oilheat

hours. If this happens with the boiler waterline steady and with no steam or hot condensate escaping from the sysetm, then plainly the Btu output of the boiler is insufficient for the load. The load may be especially heavy because the radiator and unit heaters are in uncommonly cool rooms, increasing their heat outputs so that these exceed rated outputs. The load may be heavy because the steam mains and returns are especially long, or are uninsulated, or both. Firing the boiler harder, if this is possible, should help. Perhaps the boiler simply is undersize for the actual load on it, regardless of how its size and the load may have been figured.

If obtaining dry steam and keeping the boiler waterline steady are problems, it would have been better to use a 4" header over the boiler instead of the 2½" horizontal header you installed. However, this probably does not relate to the boiler's inability to carry the load on it.

* * *

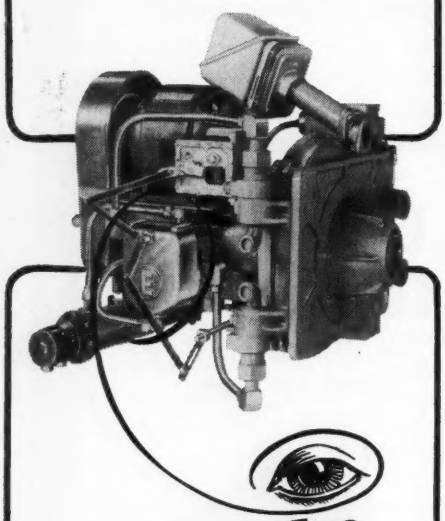
Q. Unless we use No. 1 oil in certain small gun burner furnaces, flues soot up too often running the boilers five minutes at a time using sensitive thermostat adjustments for C.A.C. Isn't this a matter of using either (a) No. 1 oil regularly instead of No. 2 or 3 oil in such furnaces, or (b) discarding ideas of running burners five minutes at a time, and setting up for longer runs? Why don't all fueloil companies and equipment manufacturers face this problem squarely?

G. B. F., St.Paul, Minn.

A. You simply are pointing out that in general the effort is to secure at the same time the advantages of using low-priced fueloil and of gaining maximum comfort through using the short oil-burner "on" periods. You are suggesting giving up one of these two advantages to avoid frequent flue cleaning on the jobs giving you trouble. However, certain installations using fueloil heavier than No. 1 do obtain clean burning when the "on" periods are exceedingly short, thanks to excellent design of the oilburners, furnaces, and combustion chambers. We suggest you try furnace units capable of this.

No Better Burner Built!

ENTERPRISE
HEAVY-DUTY HORIZONTAL
ROTARY OIL BURNERS
Approved by Underwriters' Laboratories, Inc.



Keep your Eye on the Enterprise

P·D
METERING PUMP
P·D { Positive Displacement / Precision Delivery of Oil
—Making oil burner history!
Write for complete information

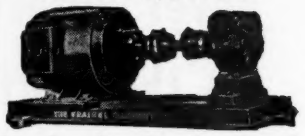
25th Anniversary 1951
Enterprise DEPENDABLE Oil Burners

ENTERPRISE ENGINE & MACHINERY CO.
A Subsidiary of General Metals Corporation
18th & Florida Sts., San Francisco 10, California

• SINCE 1926 • in the application, design and mfg. of pumps — separators — hydraulic accessories.

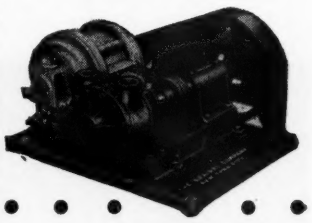
PUMPS and SEPARATORS for oil burner service

CLASS 50 LIGHT OIL PUMPS
Direct Drive for #1 to #5 oils inclusive
Ask for bulletin A-1330



Reduction Drive for heavy oil
Ask for Bulletin No. A-1193

CLASS 60 HEAVY OIL PUMPS



CLASS 72 STRAINERS —FILTERS
Single and Duplex
Standard and High Pressure Baskets instantly and easily changed — eliminates filter replacement costs entirely.
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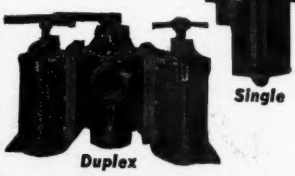

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Duplex

for bulk station service

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Direct Drive
For exclusive use with Light oils and solvents
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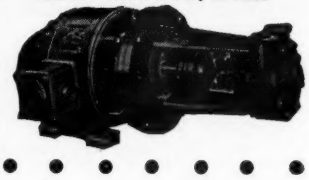


CLASS 80 TRI-ROL PUMPS
Interchangeable Service
Both light and heavy oils—tank truck and bulk station
Ask for Bulletin No. A-1366

KRAISSL KRAISSL CO Inc.
295 Williams Ave. Hackensack, N. J.

Book Shelf

Burkhardt authors Book On "Domestic Oil Burners"

THE LATEST SERVICE and mechanical information on gun type, rotary and vaporizing oilburners is provided in "Domestic Oil Burners—Installation and Servicing," a book written by Charles H. Burkhardt, heating editor for *Sheet Metal Worker* and *Plumbing and Heating Journal*. Operating characteristics of each type of oilburner are covered, along with analyses of what design differences in various models mean to installation and servicemen.

Numerous charts illustrate simplified trouble-shooting, plus a specialized treatment on how to service individual burner parts, augmented with a discussion of how to size, design and build combustion chambers and detailed, illustrated working data on each phase of burner installation, service and maintenance.

The book is a practical, comprehensive discourse that will be helpful to executives, as well as to experienced service and installation men and apprentices. The author, writer of many professional articles on specialized phases of automatic oilheating, conducts special research and test projects and develops training manuals for oilburner and accessory equipment manufacturers, as well as serving as a heating consultant.

Included in the book's 33 chapters is information on making a complete heat survey, determination of gph ratings for new and conversion jobs, installation and wiring of all types of controls, servicing of nozzles, pumps and ignition assemblies, recent improvements in electronic and burner-mounted controls, combustion heads and combustion chamber design.

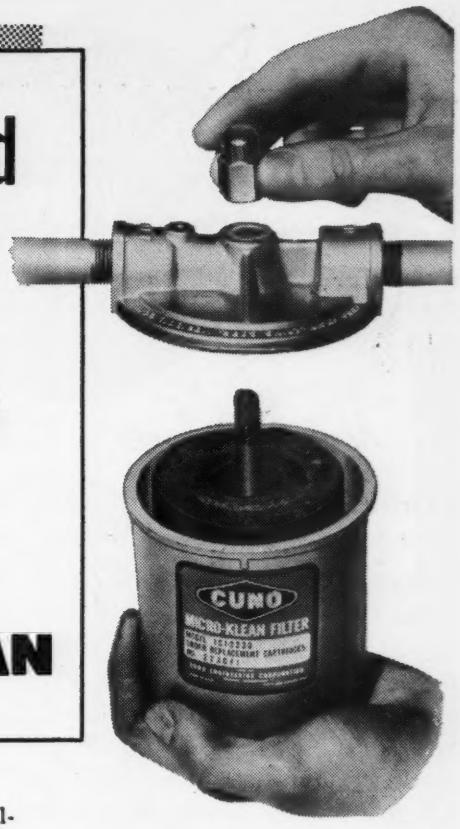
The last three chapters contain reviews of "Basic Oilburner Service Methods," divided into discussions of "No Heat," "Underheating and Overheating" and "Defective Burner Operation." Each contains its own chart that solves specific service complaints.

"Domestic Oil Burners" is published by McGraw-Hill Book Co., New York 18, N. Y., cloth binding, 359 pages, price $6.00.

"60-Second Service"

MAKES YOU MORE MONEY SELLING

CUNO MICRO-KLEAN



Nothing could be simpler than installing a Cuno MICRO-KLEAN Oil Burner Filter—or replacing a MICRO-KLEAN cartridge.

One model handles all domestic burner installations and the straight line pipe connections save time and work. Also—

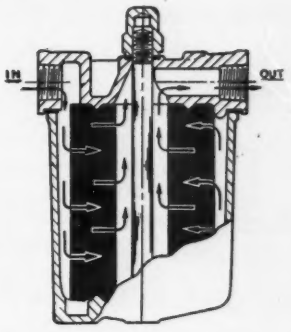
It takes only 60 seconds to remove an old cartridge and insert a new one. Turning a single nut permits removing the housing cover.

Only One Size to Carry

Universal application of a single model saves inventory cost and shelf space, and eliminates lugging several sizes to the job.

FOR FREE BULLETIN, ATTACH COUPON TO YOUR LETTERHEAD

● **Cuno MICRO-KLEAN Filters and replaceable cartridges are manufactured by the company whose filters are used more often in industry than any other brand.**



● **User Satisfaction—"Graded Density in Depth" of micronic-fibre cartridge plus resinous impregnation doubles dirt-collecting capacity, eliminates channeling.**

CUNO

OIL BURNER FILTERS

Easier to Stock . . .
Easier to Install

Cuno Engineering Corporation
855 South Vine St., Meriden, Conn.

Please send information on Cuno MICRO-KLEAN Oil Burner Filters and replacement cartridges.

Name.....

Title.....

Company.....

Address.....

New Products

Swirling Flame adds Three improved Models

THREE IMPROVED MODELS have been added to the line of Swirling Flame vertical atomizing oilburners. Designed for conversion installations, the new models include a high-boy model A-1, firing from 0.5 to 0.75 gph; medium-sized model A-2, rated from 0.75 to 3.0 gph and the larger, commercial model A-3, with capacities from 3.0 to 7.0 gph.

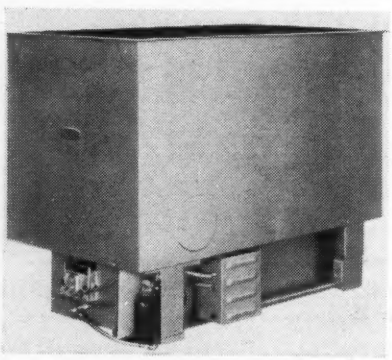
Swirling Flame oilburners, formerly known as Swirling Heat, are high pressure atomizing oilburners that employ a vertical nozzle and can be installed without a combustion chamber.

Made by: Swirling Oil Burner Mfg. Corp., 22-15—37th St., Long Island City 6, N. Y.

Shallow floor furnace Announced by H. C. Little

A NO-DUCT, specially-designed shallow floor furnace is a new addition to the H. C. Little line. Installation is facilitated since its over-all size is 34" deep, 22" wide and 40" long, eliminating the need for excavation even in homes unusually close to grade. The unit delivers 50,000 Btu/hr.

The grille on top affords both warm air discharge and cold air return, construction consisting of a steel outer casing, a steel double wall, air insulated inner casing and a gas-tight, welded, heavy steel inner furnace that forms the combustion chamber. A patented Thermo limit safety control prevents overheating from any cause.



Other units available include automatic, conventional floor and wall furnaces in sizes up to 80,000 Btu/hr. and manually-operated units.

Made by: H. C. Little Burner Co., San Rafael, Calif.

Crise combination Fan and limit Control

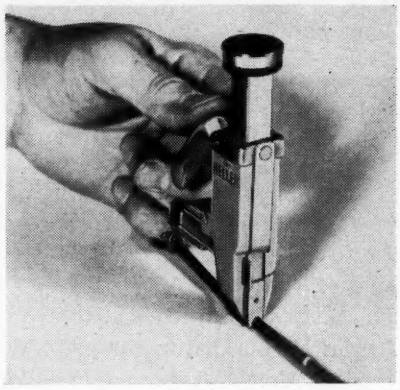
CRISE TYPE FAL-10 A is a combination fan and limit control with manual summer fan switch. The three-in-one unit combines the functions of a safety high limit control, with winter fan control, plus an easily accessible manual switch to provide continuous summer ventilation.

All components operate separately and independently of one another. Special features include fixed or removable stops on the high limit side at no extra cost, thermal element insertion lengths up to 18" maximum and a convenient swivel mount.

Made by: Crise Controls Div., Acro Mfg. Co., Columbus 16, Ohio.

Heller staple Tacker For wire Installations

A STAPLE TACKER that fits in the pocket has been developed to effect savings of time and money in making wire installations. It speedily staples braided, rubber-coated, single and double strand wire and hollow tube lines. Improved staples in several colors penetrate plaster, composition board, hard and soft woods, with holding power up to 64 lbs. The machine drives the staple to a desired depth without marring or injuring the wire.



Front and rear guides circle the wire and permit rapid drawing around difficult angles or corners, along baseboards, window frames, ceilings, door jambs and rafters. It is intended for use particularly with low voltage wiring.

Made by: The Heller Co., 2153 Superior Ave., Cleveland 14, Ohio.

Roesch hand Crimpers Made in two Types

STRAIGHT AND ANGLE type Roesch hand crimpers are being offered for crimping, seaming, bending, forming and straightening operations in all sheet metals. They are made of a fine grade of tool steel, designed to facilitate use in close quarters.

Two models of the straight type are offered, both 9½" long and with 1¾" throat depth. One model features a 3½" wide jaw, the other a 2¼" wide jaw. Dimensions for the two models of angle types also available are the same, except that the throat is 1⅞" deep.

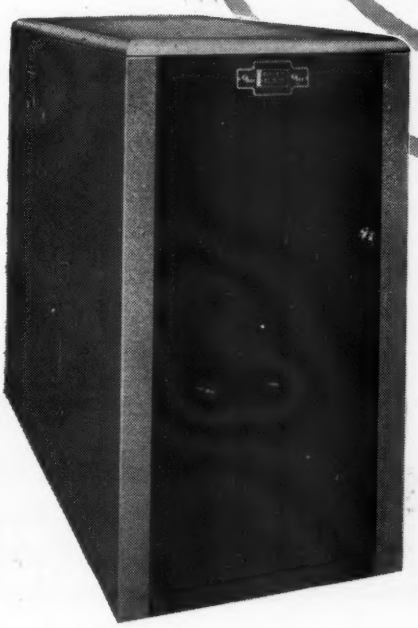
Made by: Roesch Tool Products, 3461 Grand View Blvd., Los Angeles 34, Calif.

Glasfloss develops Premium air Filter

GLASFLOSS I-S (impingement-strainer) air filter is described as a premium product for increased air cleaning efficiency. The filter has the same standard impingement filter pad of the regular Glassfloss line, to which has been added a bonded industrial mat placed on the down stream side of the filter.

The new model is being offered in

hit your sales target with this B-B* gun!



*Boiler-Burner unit

fired by the

QUIET MAY OIL BURNER

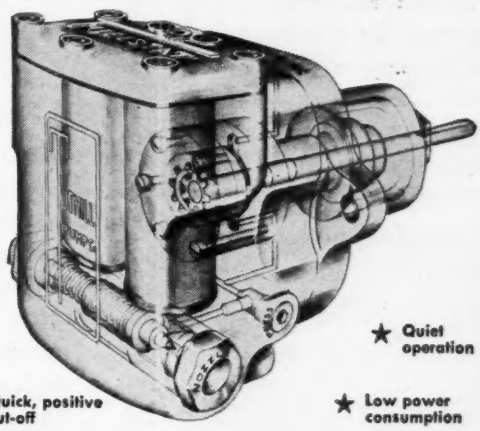
Here's the complete Quiet May "package" that generates plenty of heat and hot water for your customers... plenty of profits for you! Write for specifications, performance data and franchise details.

MAY OIL BURNER Division of Gerotor May Corporation
P. O. Box 86, Baltimore 3, Maryland

INSIDE STORY OF PROVED PERFORMANCE

★ Strainer removable without spilling

★ Cast iron pump unit encased in 45,000 p.s.i. tensile strength zinc alloy



★ Quiet operation

★ Quick, positive cut-off

★ Low power consumption

★ Light weight

TUTHILL 30E6N FUELSTAT

Provides
- UNIVERSAL APPLICATION
- DEPENDABLE PERFORMANCE
- SIMPLIFIED SERVICING
- GREATER ECONOMY
- MORE ATTRACTIVE APPEARANCE

Proved by thousands already in service, this perfected Tuthill Fuelstat sets the pace for dependable pumping equipment. All working parts are made of cast iron and steel with high grade (99.99+% pure) zinc alloy body to obtain the ultimate in toughness, durability, corrosion resistance and leak-free performance.

It will pay you to write for full details today

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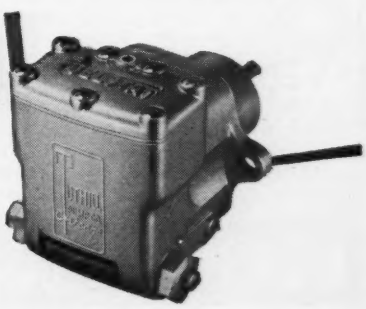
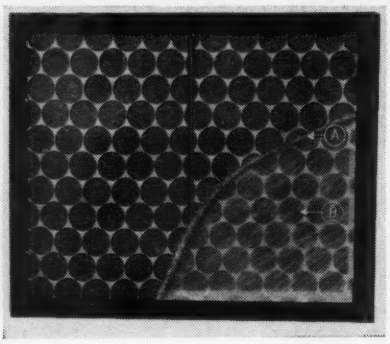




addition to the regular line, and it is reported that tests have shown the performance of the I-S filter to be about normal in comparing its resistance and life with other makes.

Made by: Glassfloss, 155 West 44th St., New York, N. Y.

Conco adds gravity Furnace Fired with pressure Burner

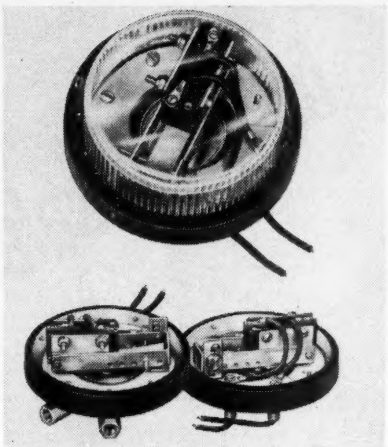
A PRESSURE OILFIRED gravity furnace has been added to Conco's Town & Country line, delivering 82,000 Btu at the bonnet, with a Magic Spray oil-burner. The gravity series has been developed to provide a quality, fully automatic furnace at minimum cost and features liners and the inside of the casing painted with reflective aluminum.

Designed for easy installation, the gravity model simplifies assembly by the use of snap lock joints, low height to allow ample room for the plenum and ducts even in low head-room basements. The unit has self-leveling legs, cold air return at either side or rear of the casing and baked red Bonderized enamel finish. Its heat exchanger and radiator are accessible for cleaning.

Made by: Conco Engineering Works, Mendota, Ill.

Dwyer high Sensitivity Pressure-actuated Switch

A PRESSURE-ACTUATED SWITCH, added to the Dwyer line, operates on low pressure and is described as ideal for indicating pressure drops in air filters, across coils, to detect power or blower failure and similar applications. Its slack diaphragm is linked to a beryllium copper spring with a high sensitivity 10 amp., 110 V. AC Micro-Switch, actuated by pressure from the spring. The switch operates on plus,



minus or differential pressures up to 4 ins. of water for standard models.

Model 1620 (illustrated) has a 4½" dia., minimum setting of .25" water with a gap between make and break pressure of .20" water or greater; model 1625 has a 7" dia., minimum gap between make and break pressures of .05" water in the lower settings, 10% or more of the setting in higher ranges.

Switches may be mounted in any position, with full adjustment made in the field or pre-set at the factory. They may be obtained in connection styles suitable for front, flush or semi-

2 PROVEN PROFIT MAKERS

The QUALITY OIL BURNER

•A size for every job • Capacity .75 to 20 G. P. H. • Adaptor flanges to fit boiler or furnace units • GE or Ohio motor • MH controls • Service-free • Stays sold.

SILENT KORTH OIL HEAT

The QUALITY CONVERSION GAS BURNER

• PATENTED SPREADER FLAME BURNER HEAD • VARIABLE ORIFICE • LOW COST INSTALLATION IN ANY BOILER OR FURNACE • 65,000 TO 300,000 B.T.U. CAPACITY. MANUFACTURED, NATURAL OR MIXED GAS • STANDARD PARTS

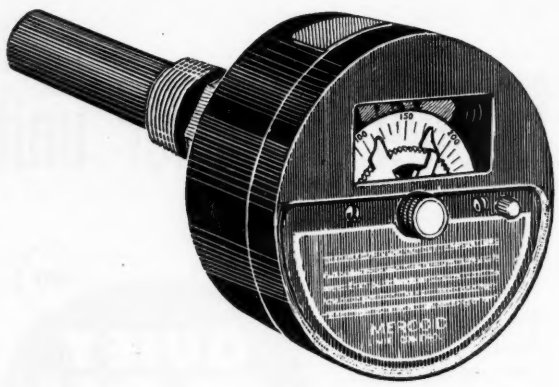
SPREADER FLAME ECKHART GAS BURNER

BOTH UNITS SOLD THRU PLUMBING AND HEATING JOBBERS
SEND FOR OUR JOBBER SALES PLAN TODAY

ECKHART MFG. CO. INC. UNION, NEW JERSEY

MERCOID

TYPE 437 BOILER WATER TEMPERATURE CONTROL FOR SEPARABLE WELL IMMERSION APPLICATIONS



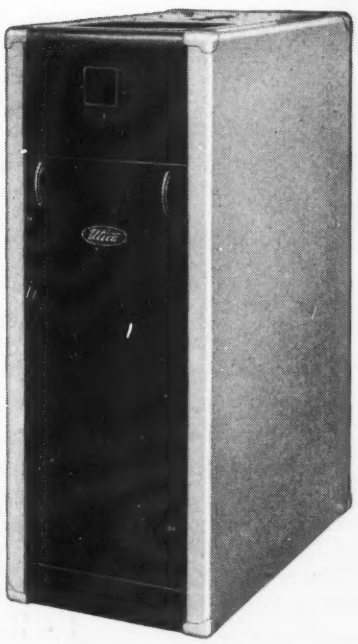
This is an all-around automatic hot water boiler temperature control

It can be used as a limit control, an operating control, or a summer-winter hot water supply control. * It is also used on steam boilers for hot water supply, employing indirect domestic hot water heaters.

Write for Mercoid Catalog No. 700
It contains a lot of control information.

THE MERCOID CORPORATION • 4201 BELMONT AVE. CHICAGO 41, ILL.

THE Utica '1' OIL BURNING BOILER



Here are seven points of preference for the Utica "1" wet base — oil-fired Sectional Boiler:

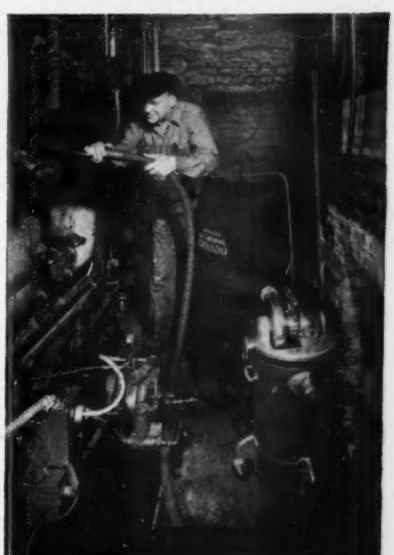
1. Tailored for homes with or without basements — Wet Base Construction.
2. Made of durable Cast Iron — the lifetime metal.
3. Equipped with built-in large capacity Tankless Heater — (3 to 5 G.P.M.)
4. Can be supplied with prefabricated combustion chamber and flange-mounted Oil Burner.
5. Engineered for low fuel consumption.
6. Efficient — trouble free — easily installed.
7. Available in five sizes.

UTICA RADIATOR CORPORATION
UTICA, N. Y.

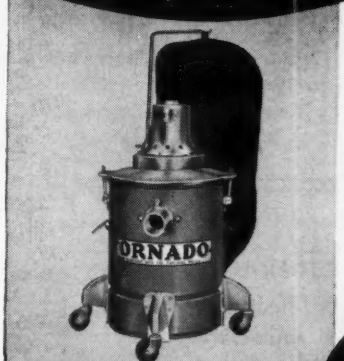
TORNADO®

...powerful, efficient, sturdy, furnace and boiler cleaner!

Tornado furnace and boiler Vacuum Cleaners are specialized machines that quickly and thoroughly remove all heavy, clinging greasy soot from every part of the entire heating system. Powerful suction is maintained throughout the cleaning operation. Large dust and dirt-proof, double thickness bag and large capacity steel tank catch and retain all soot and dirt. Complete set of attachments for every cleaning requirement. 3 models to select from.



A profitable extra service!



Leading coal and fuel oil companies have built up a profitable business and increased the number of customers by offering a Tornado furnace and boiler cleaning service. Get the details today.

BREUER ELECTRIC MFG. CO.
Dept. FO-5
5100 N. Ravenswood Ave., Chicago
Please send us your Bulletin No. 581.
Name_____
Address_____
City_____ State_____

FREE! Bulletin 581

BREUER ELECTRIC MFG. CO
CHICAGO 40, ILL.

fuelfoil oilheat

flush panel mounting and are provided with 1/8" pipe connections for plus and minus pressures, along with 3 ft. wire leads. Rubber tubing connections are furnished, when specified.

Made by: F. W. Dwyer Mfg. Co., 317 South Western Ave., Chicago 12, Ill.

Colonial offers Series Of Fueloil price Charts

COLONIAL fueloil price books and sheets cover a price range from 9.1 to 15 cents, in tenths of a cent. The tables are available with and without sales taxes added and are worked out in increments of 25 gallons up to 1,000 gallons. An auxiliary table incorporated tabulates prices for from 1 to 24 gallons, so that the combination of the two furnishes total prices for intermediate amounts.

Large, easy-to-read figures show totals on one chart, while another type that includes sales taxes, lists prices for specific gallonages, shows the amount of tax to be added and combines the two for a grand total. An order for 60 chart units is shipped with a ring binder, with acetate jackets offered to protect individual charts.

Made by: Colonial Co., 953 East 9th St., Brooklyn 30, N. Y.

Monogram markets Series of Square combustion Chambers

MONOGRAM, in cooperation with the manufacturers of several types of combustion heads, has developed a series of square combustion chambers, ranging from 0.75 to 2.0 gph. These Lite-Cast chambers are well adapted to the "sun-flower" type flames and are additions to an already complete line.

Specifications on the Square series, and other models, are available on request.

Made by: Monogram Products Co., Inc., 731 North 35th St., Philadelphia 4, Pa.

Leak Lock joint Compound Contains plastic Base

A SPECIAL poly-hydroxylated plastic base is used in the manufacture of Leak Lock joint sealing compound. Leak Lock is packaged in 1-1/3 oz. tubes and in 1 pt. and 10 lb. cans. To prevent leaks at pipe threads, plugs, gasket flanges and in tanks, a small amount of the compound is applied from a tube or with a brush.

When the compound sets it does not form a hard mass, but stays elastic to withstand vibration of a moving unit. Most chemicals do not break down or harden Leak Lock so that the danger of cracks that make leaks possible is minimized.

Made by: Highside Chemicals Co., 10 Colfax Ave., Clifton, N. J.

Model 1200 Tal Bender Handles Tubing up to 5/8"

TAL MODEL 1200 "3 in one" has been added to the company's line of bending equipment. Designed for making offsets and bends up to 180°, the tool handles 3/8", 1/2" and 5/8" O.D. copper tubing, brass, Bundyweld, steel and other light gauge tubing.

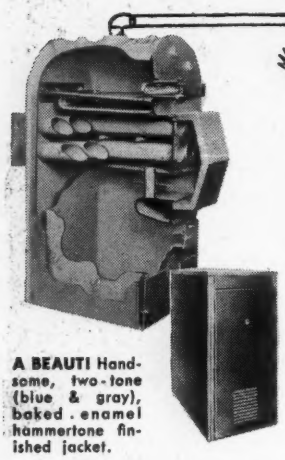
Made from a special strong, lightweight metal, model 1200 is fast and simple to operate, requiring no vise or fixtures. All three sizes are combined in the one 5 lb. tool, which has no loose

LOW COST — A.S.M.E.

FEDERAL BOILERS

THE PERFECT SOLUTION TO THIS PROBLEM

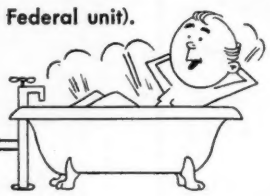
NO HOT WATER!



A BEAUTI Handsome, two-tone (blue & gray), baked enamel hammertone finished jacket.

FEDERAL GAS AND OIL BOILERS are supplying hot water for thousands of homes throughout the country . . . as well as many larger installations. Among these are, Schlitz Brewery (3000 G.P.H.) and Launderettes operating as many as 30 machines (supplied by a single Federal unit).

RESULTS



FEDERAL'S TANKLESS COILS

- Widely spaced, allow ample water circulation around tubes.
- Brass Binders hold tubes firmly.
- Binders placed to allow expansion and contraction of tubes.
- Special design permits larger coils to be installed when desired.
- For Steam—coils submerged well below water line.

No matter what the job, when your specifications call for a Low Cost oil or gas unit, Easy To Look At, A Snap To Install and Service, that will Work Like A Charm, ASK YOUR JOBBER FOR FEDERAL.

FEDERAL BOILERS

- Efficient Operation
- Attractive Jacket
- Durable Design
- Accessible Parts

Model #FVW—66,000 to 96,000 B.T.U. net output

Model #FC—77,000 to 312,000 B.T.U. net output

Model #FD—360,000 to 528,000 B.T.U. net output

FEDERAL BOILER CO., INC.

GRANITE & WEST STS., MIDLAND PARK, N. J.

FEDERAL BOILER CO., INC., General Offices
2610 E. Tremont Ave., Bronx 61, N. Y.
Please send me free bulletins.

Name.....

Address.....

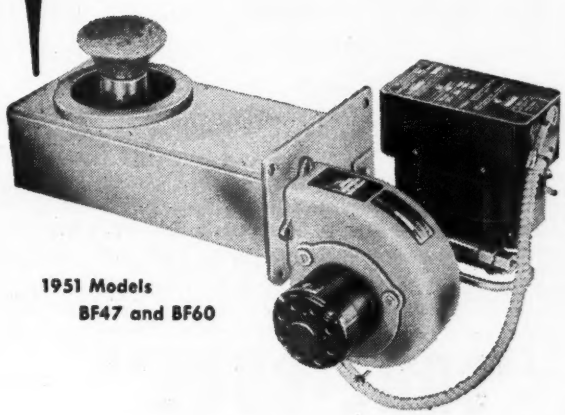
MORE FURNACE MANUFACTURERS THAN EVER BEFORE WILL CHOOSE

The New 1951 *Ball Flame*

Reg. U.S. Patent Office

OIL BURNER

KRESNO-STAMM
Since 1927



1951 Models
BF47 and BF60

In 1951 manufacturers will again show their overwhelming confidence in the quality and performance of "Ball Flame" Burners by making them a vital part of the furnaces they will ship to small homes projects and to builders of hundreds of individual homes.

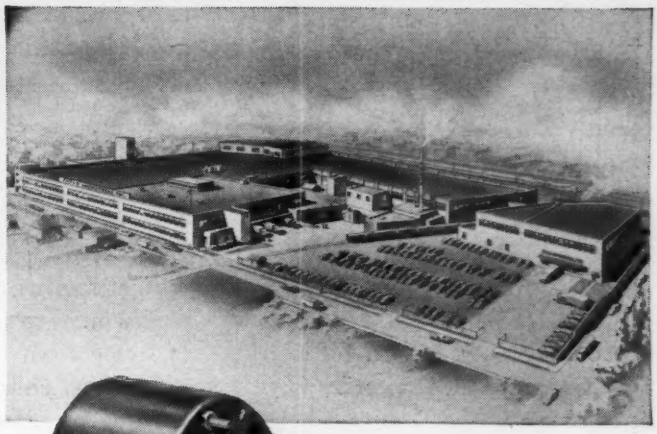
This *completely automatic, pressurized air, gravity type oil burner* is now standard for leading makes of small furnaces, installed in many flourishing home developments.

Builders and heating contractors in large numbers are writing the "Ball Flame" into their furnace specifications.

Here's Why

- ✓ **It's absolutely quiet—no motor hum, no flame roar.**
- ✓ **It burns less than 0.75 gallon per hour *without clogging*, flame deflection and burning out of fire boxes, as with small capacity pressure burners.**
- ✓ **It vaporizes and burns the oil perfectly — no starving the center of burner flame and poor combustion.**
- ✓ **An automatic levelling device is built into each burner.**

KRESNO-STAMM MFG. CO. (America) Inc.
PALISADES PARK, N. J.
Canadian Affiliate: Kresno-Stamm Mfg. Co. (Canada) Ltd.
1452 Drummond Street • Montreal, P. Q.



FASCO's modern plant is equipped for complete engineering, economical mass-production, and thorough testing of motors that are exactly right.

For dependable performance . . .

FASCO

FRACTIONAL H.P. MOTORS

The performance of your product and your reputation for quality depend upon the motor you use. That's why so many leading manufacturers look to FASCO for fractional h.p. motors. They know through their own tests and through years of experience that FASCO motors will give the long, dependable performance they require.

Every FASCO motor is job-fitted. Whether your need is dependability, efficiency, durability, or the best possible combination of all three, FASCO engineers will help you specify the motor that is exactly right. And every motor is thoroughly tested and proved in use before it goes into production.

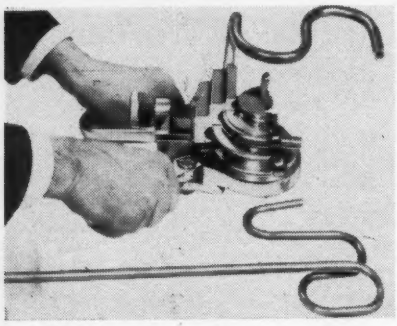
FASCO manufactures a wide range of small motors from 1/500 to 1/8 h.p. Most of them are shaded pole induction motors in 2-pole, 4-pole, and 6-pole speeds. If this is the type of motor you're looking for (and we'll tell you if we think it isn't), we would like to discuss your needs.

MOTORS FOR DEFENSE — During World War II FASCO made small auxiliary motors for aircraft controls, in voltages from 6 to 110. FASCO is equipped and ready to produce more of them now.

Write for complete information

"Your comparison test will prove FASCO best"

FASCO
INDUSTRIES, INC.
ROCHESTER 2, N. Y.



parts. It is recommended for use in fabricating radiant heat coils, as well as other uses.

Made by: Tal Bender, Inc., Milwaukee 2, Wisconsin.

Tank insulation combined With aluminum Sheathing

THE NICHOLSON-GALLOWAY system of insulation for bulk storage and similar tanks is begun by welding channel sections of 18-gauge steel to the tank walls. Next the surface of the tank metal is divided into areas bounded vertically by the channel sections and horizontally by shelf angles welded between the channels. These prevent the insulation from slumping. Within these areas insulation of any type or thickness is installed.

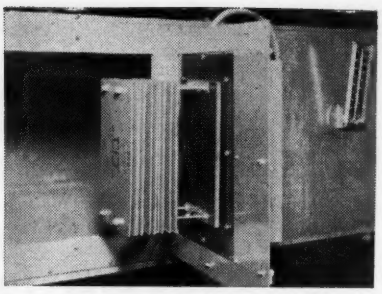
After the insulation has been applied, it is protected by a cladding of .024 corrugated aluminum sheathing. For special conditions the outer armor may be asbestos transite or any non-corrosive metal.

Roof insulation for tanks also is included in the technique, consisting first of laying down 1½" roofing Fiberglas over which either saturated felts are mopped or Gilsonite Insul-Matic is spray-coated throughout the deck surface. The final step caps the roof with a gravel-stop flashing of non-ferrous metal, rendering the roof and side-wall insulation waterproof.

Made by: Tank Insulators, Inc., 426 East 110th St., New York 29, N. Y.

Vitra-Aire Purifier Employs Ultra-Violet

VITRA-AIRE units purify the air by passing it through an ultra-violet field, oxidizing all organic matter, such as smoke, gases and odors, and reducing the bacteria content. The illustration



shows one of the units installed on a hinged panel and swung out from a duct.

It is designed for installation in air ducts or air conditioning units for buildings as well as homes. Portable units also are offered for use where there are no ducts. These may be placed where desired and plugged into any 110 V. AC current.

Made by: Vitra-Aire Div., Hydro Aire Corp., Waukesha, Wis.

Thermobloc enlarges Line With small capacity Models

TWO MODELS, 100,000 and 200,000 Btu/hr output, have been added to the Thermobloc line of self-contained, direct-fired industrial heaters. The new

KO-Z-AIRE®

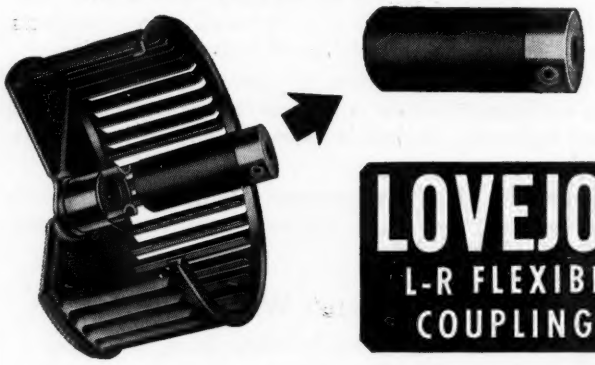
Advance Design
GAS AND OIL FIRED
WINTER
AIR CONDITIONERS
and
GRAVITY
WARM AIR FURNACES

- More than 30 models . . . All Fully Automatic
- Most Units Shipped Completely Assembled and Wired
- Wide range of unit sizes, ratings, prices
- Ratings from 70,000 to 450,000 BTU Input

A complete line including Counterflow Units and Gas Conversion Burner. A size for every home on your prospect list. Write today for details to Dept. FO-5.

KO-Z-AIRE, Incorporated
FACTORY, SALES AND GENERAL OFFICES — RED OAK, IOWA
FACTORY REPRESENTATIVES IN PRINCIPAL CITIES

A "SURE-CURE"
for maximum misalignment, Backlash, Vibration, Surge . . .



LOVEJOY
L-R FLEXIBLE
COUPLINGS

For a truly quiet coupling for fans, pumps and blowers, try this coupling. Rubber center unit increases flexibility and reduces noise. Lovejoy Flexible Couplings are easy to install . . . even in dark and close quarters. For better, quieter installations, use Lovejoy Flexible Couplings.

IMPORTANT . . .
Most fan manufacturers supply blowers with L-R jaws on blower hubs.
WRITE FOR CATALOG AND COMPLETE INFORMATION

LOVEJOY FLEXIBLE COUPLING CO.
5012 W. Lake Street, Chicago 44, Illinois
Also Mfrs. of Lovejoy Universal Joints and Lovejoy Variable Speed Transmissions

1st choice for AUTOMATIC CONTROL

K-21 Magnetic Single Seated Valve

K-10 Magnetic Lever Valve

V-110-1 Manual Reset Valve

L-32 Immersion Thermostat

T-70 Room Thermostat

R-99 Oil Burner Stack Control

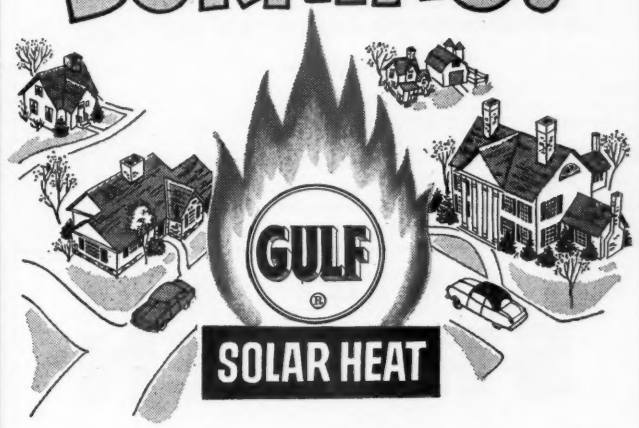
GENERAL G|C CONTROLS

801 ALLEN AVENUE GLENDALE 1, CALIFORNIA

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cincinnati 2, Cleveland 15, Dallas 2, Denver 4, Detroit 21, Glendale 1, Houston 6, Indianapolis 5, Kansas City 2, Minneapolis 2, Newark 6, New York 17, Philadelphia 23, Pittsburgh 22, St. Louis 3, San Francisco 7, Seattle 1, Tulsa 6, Washington 6.
DISTRIBUTORS IN PRINCIPAL CITIES

KEEPS THE HOME FIRES (and Customer-Confidence) BURNING!



Customer confidence takes time to build up. Fifty years of service, experience and research have built for Gulf and its dealers a unique public acceptance so wide that instead of just ordering "fuel oil," it has become second nature to thousands to say: *"Gulf Solar Heat!"*

GULF OIL CORPORATION • GULF REFINING COMPANY

ENGINEERED FOR YOUR BURNER

ACME ELECTRIC CORP.
505 WATER ST. CUBA, N. Y.

Acme ACME Electric
TRANSFORMERS

LIKE VIKING WARRIORS OF OLD

VIKING ROTARY PUMPS are RUGGED!

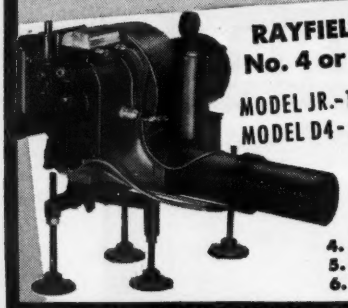
Just as Viking means rugged warriors, so does Viking stand for rotary pumps that are rugged. Designed and built for service, Viking pumps have proved dependable and long-wearing.

Note the simple "gear-within-a-gear" construction, with only two rugged moving parts and no small, intricate pieces to wear and get out of adjustment. You'll then know why Vikings are so famous for long, dependable service.

For information on Viking pumps, write today for free Bulletin 1500EE.

Viking PUMP COMPANY
Cedar Falls, Iowa

RAYFIELD AUTOMATIC OIL BURNERS



RAYFIELD BURNERS FOR No. 4 or No. 5 HEAVY OILS

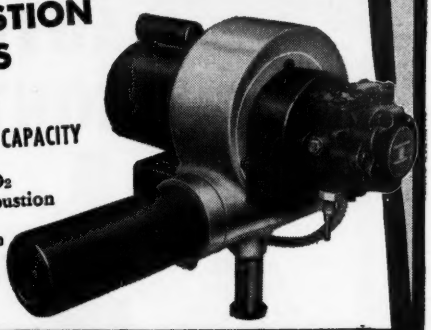
MODEL JR.-1.00 to 5.00 GALS./HR.
MODEL D4-3.00 to 12.00 GALS./HR.

1. Fully Automatic
2. Self Cleaning Nozzle
3. Self Lubricating
4. All Electric Operation
5. Pays for itself from savings
6. Burns the cheaper No. 5 oil

PATENTED COMBUSTION HEAD OIL BURNERS

for CATALYTIC OILS TO #3 GRADE
2 MODELS -1.00 to 3.00 GALS./HR. CAPACITY

1. Amazing Economy 12 to 15% CO_2
2. Clean boilers with perfected combustion
3. Burns Catalytic oils easily
4. Quiet—No Vibration or pulsation
5. Cuts user's oil bills 14 to 36%
6. The ideal replacement oil burner

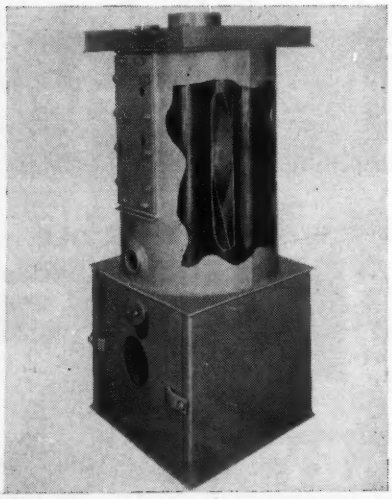


C. L. RAYFIELD COMPANY • 2010-18 SO. HALSTED ST. • CHICAGO 8, ILL.

. . . . New Products

Penn "R" Boilers for The small home Market

THREE MODELS of Penn boilers make up the new "R" line, designed for the small home market. They are rated at 275 sq. ft. steam and 440 sq. ft. hot



water for model R-66; 320 sq. ft. steam and 510 sq. ft. hot water for model R-76 and 400 sq. ft. steam and 640 sq. ft. hot water for model R-96. Each can be furnished with or without enclosing jacket. Construction features include a factory installed, pre-cast combustion chamber, all controls mounted on front of boiler, occupying a floor space of less than 4 sq. ft.

The "R" line incorporates baffled, vertical flue travel, with tubes and tube sheets accessible for cleaning. Eight tubes are installed in the smallest model, with 10 and 12 built in the larger sizes. Oilfiring rates range from 1 to 1.5 gph and a 3-1/3 gal. tankless water heating coil is standard.

Made by: Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.

Machine for cleaning Permanent type Filters

PERMANENT type filter elements used in air conditioning systems may be cleaned more quickly with the Safe-N-Ezy air filter washer-oiler. One washer operated by one man can clean 600 or more standard filter elements in an 8-hour day, as compared with the old-fashioned hose and vat method.

Filters spin in the interior basket of the washer through a complete cycle and emerge cleaned, rinsed, spun dry and oiled. The machine occupies a floor area, measuring 6 ft. 10 in. by 4 ft. 4 in.

Made by: Paxton-Mitchell Co., 27th & Martha Sts., Omaha 5, Neb.

Blackmer hand Pump Line Includes five Series

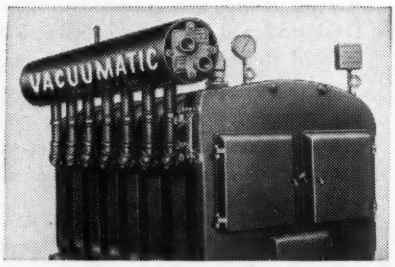
FIVE SERIES make up the new hand pump line announced by Blackmer Pump.

Series 210 and 404 are direct drive models, 10 gpm capacities. Series 414 direct drive pump is furnished with an 8" or 10" crank and 1" or 1¼" openings for light or heavy liquids for delivery up to 14 gpm. The last two, series 828 and 807, are geared hand pumps for normal or viscous liquids, delivering up to 28 gpm. Series 828, 807, 414 and 404 are swinging vane construction with cam-bored bodies; Series 210 is sliding vane construction. All vanes are self-adjusting for wear.

Made by: Blackmer Pump Co., 1809 Century Ave., Grand Rapids, Mich.

VACUUMATIC
Reg. U. S. Pat. Off.

The "world's fastest water heater"



There is a reasonably priced Alstrom water heater immediately available to fill your needs—for every type and size of boiler.

Write today for free booklet "The Vacuumatic Story"

THE ALSTROM CORPORATION
P. O. Box 33, Dept. F 5 • New York 60, N. Y.

It's
STEINEN
for
Nozzles

Nozzles — Adapters — Nozzle Kits
Inspection Mirrors — Air Bands

WM. STEINEN MFG. CO.
43 BRUEN ST. NEWARK, N. J.

KLEENMASTER Makes Servicing Profitable

Eliminate your service loss on oil accounts. Kleenmaster grosses $7.00 per customer after selling expense and labor.

Keep your Drivers and Servicemen busy during the summer slack.

The "Big Bag" with your name in large type gives you "Billboard and Soundtruck" advertising.

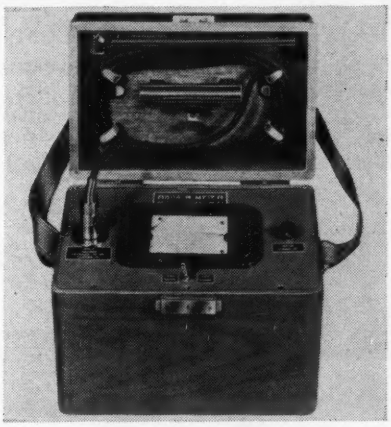
Write for details including
Sales Manual and Profit Analysis

MOLLOY MACHINE CORPORATION

3445 N. Western Ave.
CHICAGO 18, ILL.

. . . . New Products

Air Velocities are Measured by Agitair



A BATTERY-POWERED Agitair Meter for measurement of air velocities has been designed for heating, ventilating and air conditioning work. Its operation is based on the hot thermopile principle. Agitair measures velocities as low as 5 fpm and as high as 4,000 fpm, static pressure readings from 0 to 4" wg.

Compact and light in weight, the Agitair can be carried easily. Its simplicity permits it to be used for diverse applications.

Made by: Air Devices, Inc., 17 East 42d St., New York 17, N. Y.

Detroit air filters Feature wick Action

DETROIT FILTERS for air cleaning applications are made of soft, porous, absorbent corrugated fiber board, fabricated to produce a wafer with uniform cellular passages. On entering the filter, dust-laden air changes direction on

Turn Your DEFECTIVE PARTS into CA$H

We will pay you $3.00 each for the following STACK RELAYS

MINN.-HONEYWELL	MERCOID	PERFEX	PENN	DELCO-COA
RA116	JMI	5200	670	
RA117	JM	5500	672	
R116	KMI	5520		D-L - CA701
R117				

We will pay you $2.00 each for the following FUEL UNITS
WEBSTER SUNDSTRAND TUTHILL

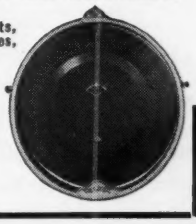
We will pay you $1.00 each for the following OIL BURNER IGNITION TRANSFORMERS
WEBSTER JEFFERSON SUPER TIMKEN
DELCO WAYNE GILBARCO

THIS OFFER GOOD FOR 30 DAYS ONLY

ALBANY AUTOMATIC SUPPLY CO. INC.
28-30 MADISON AVENUE ALBANY 7, NEW YORK

WALKER TYPE 34
For any type of domestic furnace in homes, stores, small office buildings and apartments. Sizes 6-20 inches. Shown with installation collar.

COMMERCIAL AND INDUSTRIAL



For power plants, schools, garages, industrial plants, laundries, and other commercial uses. Built to meet most severe conditions. Ball bearing. Sizes 16-36 inches.

Help Your Customers

SAVE UP TO 25% ON FUEL!

Now, you can offer savings up to 25% on ALL types of fuel . . . coal, gas, oil . . . with the new, improved Walker Draft Regulators. Assure maximum, economical combustion under ALL stack conditions. Quickly installed. Easily adjusted. Guaranteed.

Over 7 million in use!

Sell this fast turning, profit-line of draft regulators. WALKER quality makes customers. See your jobber or write Dept. 207, WALKER MFG. & SALES CORP., 1701 Penn St., St. Joseph, Mo. Do it NOW!

WALKER Automatic DRAFT REGULATORS

RAJAH TERMINALS

FOR OIL BURNER SPARK PLUG
IGNITION CONNECTIONS
Made in Two Styles
CRIMP TYPE and SOLDERLESS

Code No. C/T #11 Code No. S-SOS #11

THE RAJAH CO. BLOOMFIELD, NEW JERSEY

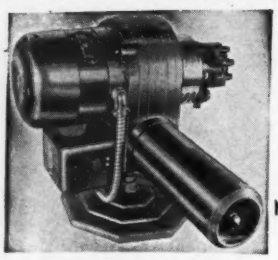
LITE·CAST COMBUSTION CHAMBERS

QUICK HEAT LONG LIFE

Close to ½ million installations are testimony to the sales making features of
MONOGRAM COMBUSTION CHAMBERS
All shapes and sizes.
Our literature will assist you in your work.
Write for it today

MONOGRAM PRODUCTS CO., INC.
731 NORTH 35th STREET, PHILADELPHIA 4, PA.

SINCE 1927
STANDARD AUTOMATIC OIL BURNERS
Now Equipped with ECONOMY HUB

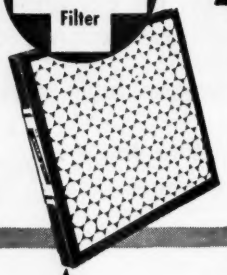


Now Switch
to
STANDARD AUTOMATIC
and SAVE the
Difference

Models from ¾ gal. to 20 gal. per hr.

STANDARD ARCOIL CORP.
21-23 Broad Street Newark 4, N. J.

The HOSPITAL WHITE Filter



AMER-glas
REPLACEABLE AIR FILTER
An *Engineered* product of
AAF
American Air Filter
215 CENTRAL AVE. COMPANY, INC. LOUISVILLE 8, KY.

. . . . New Products

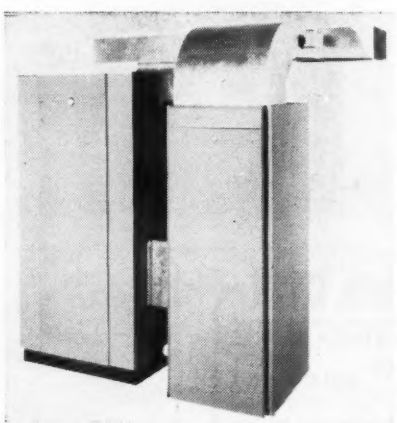
a 45-degree angle, scrubbing along adhesived cellular passages in the outer wafer. In the center of the filter, V-shaped construction creates a baffle and changes the direction of the air on a 90-degree angle, continuing to scrub along the passages of the second wafer.

The filter is a replacement type, whose patented filtering medium is thoroughly impregnated with a special adhesive and bound in a heavy fiber frame. The adhesive is odorless, remains tacky at temperatures as low as 15 degrees F. and has a flash point above 550 degrees F. It is non-volatile and will not evaporate, with a high "wetting-out" property to retain the dust collected and maintain a tacky surface even when considerable dust has been collected.

Made by: Detroit Air Filter Co., Woodstock, Ill.

General Electric Unit Combines heating and Cooling

YEAR 'ROUND home air conditioning is provided with a General Electric unit that combines a factory assembled and tested packaged air conditioner connected in parallel to warm air heating ducts. Used with a G-E gas or oilfired warm air furnace, the residential air conditioner type FE provides all the



elements of both winter and summer conditioning. It has a built-in air stream thermostat that controls the flow of cooling air and a start-stop switch can be mounted at any spot in the home's living area.

Type FE requires a floor space measuring 34" by 23", employs an 8 lb. charge of Freon-12 for normal operation. Two and 3 hp models are available, incorporating all controls, fans, motors, filters and connections necessary.

Made by: General Electric Co., Air Conditioning Dept., Bloomfield, N. J.

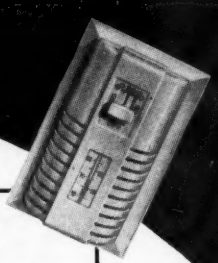
Glycolator vaporizing Units For home and commercial Use

A COMPLETE LINE of Glycolator vaporizing units is available for use in a single room, in homes and in large buildings. The units vaporize odorless invisible vapors of Glycosol—a solution of Tri-Ethylene Glycol to which Chlorafal has been added to dispel odors—to reduce air-borne bacteria and viruses. The units employ electric heating elements, are thermostatically controlled and operate at low cost.

A portable unit, which plugs into an electrical outlet, treats an average home or apartment, with a furnace Glycolator also offered to treat up to about 20,000 cubic feet of air per hour. If desired, more than one unit may be hooked up to warm air fur-

McCORKLE CONTROLS
for Vaporizing Oil Burners
Satisfy dealers . . . Satisfy customers

McCorkle Controls are backed by a record of 18 years of dependable service. Dealers endorse them, because their rugged simple construction reduces service calls to a minimum. Customers appreciate them for their dependable, accurate operation.



Write today for literature and specifications to cover your particular requirements.

D. H. McCORKLE CO.
Box E, Station A • Berkeley, California

PREFERRED Anti-Syphon Valves

PR-194

APPROVED BY

UNDERWRITERS' LABORATORIES, INC.

Permits pumping of oil but closes to prevent syphoning in case of suction line break.

FOR OILS UP TO No. 5
Valves C5 and C10 are available in ⅜" and ½" sizes.

FOR OILS UP TO AND INCLUDING No. 5
Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)

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Valve A is available in 1¼", 1½" and 2" sizes for 5 or 10-foot head pressures.

You can be sure of the best when you order from Preferred, the oldest and the largest manufacturer of anti-syphon valves.

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When installing an air vent on hot water heating systems, radiators, convectors, baseboard radiators, unit heaters, etc., be sure it's truly automatic. With Maid-O'-Mist Auto-Vents you can automatically vent out the air that causes circulation trouble and heating waste. More and more contractors who value satisfied customers are installing these trouble stoppers. No air chamber is required . . . quick and easy to install. See your jobber or write for data and attractive prices.

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AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

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AQUAHEATER®

The Insulated Tankless Water Heater
GUARANTEED FOR 15 YEARS

EASIER TO SELL - - EASIER TO INSTALL - - NO ADJUSTMENT SERVICING AT ALL

Here's the instantaneous hot water heater that has all the features both you *and* your customers want. An attractive, compact unit that is easily installed in limited space . . . provides uninterrupted supply of hot water from pure copper coils . . . no valves or built-in controls to service . . . welded construction throughout . . . no bolts or gaskets to leak. Rocklining eliminates corrosion . . . factory-formed insulation available that slips on without cutting and fitting.

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INSTALL IT—FORGET IT!

. . . make more sales and bigger profits. Available in 3½, 5 and 8 g.p.m. capacities.

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Service Sells Oil With a Red Streak

THE fuel oil dealer who offers a Super Red Streak furnace cleaning service to his customers is able to provide them with greater heating economy, comfort and satisfaction. Reveals new oil prospects, helps you sell more oil to more people.

The Super Oil Soot Filter Bag is designed to provide the filtering action needed to vacuum clean the oil plant without clogging or destructive back pressure. It is supplied at a nominal cost. Chimney cleaning tools are standard equipment.

There's no slack time for the man with a Red Streak. With our Free Super-Plan Book and a Red Streak you can easily develop a big volume furnace cleaning business and expand your entire operation.

Ask your supply dealer or write for our 5-day FREE Trial Offer.

• See our exhibit, Booth 100, National Sanitary Supply Association Convention, Cleveland, June 3-6.

SUPER SUCTION®

SINCE 1911
"THE DRAFT HORSE OF POWER-SUCTION CLEANERS"

ADD *New* ACCOUNTS *Quickly*—
CUT SERVICE CALLS
for 5/1,000th of one cent!

PARKO SLUDGE-BAN is now being used by many of the major oil companies.

Inquiries Invited for Distributorships in Protected Territories

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WHEN PARKO SLUDGE-BAN CONCENTRATE is added to your fuel oil, you will attract many new accounts and build good will with your present customers through the *trouble-free* and *better* oil heat made possible because PARKO SLUDGE-BAN CONCENTRATE:

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- √ Eliminates condensation and prevents rust.

Other Parke-Hill quality chemical products:

SLUDGE-BAN — *Fuel Oil Sludge Remover*
OXI-BAN — *Liquid Boiler Cleaner*
SOOT-BAN — *Fast-Acting Soot Remover*
SCALE-BAN — *Liquid Boiler Cleaner for hard water areas*
BOILER-SEALER GREAS-BAN — *Service Kit strainer and nozzle cleaner*
DRI-SCALE-BAN — *Oil Absorbant & Suspendant for steam boilers*
BANSOIL — *The "Oil Blotter"*

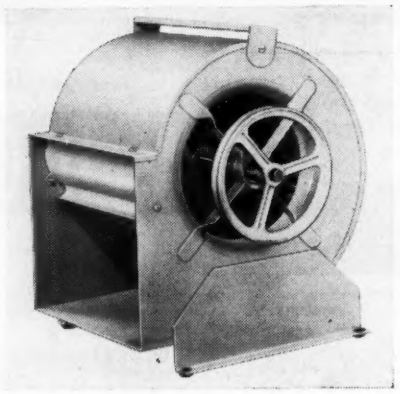
. . . . New Products

naces. A smaller unit, using less electricity than a 40-watt bulb, is effective in areas up to 7,500 cubic feet, while the Regal model, portable and thermostatically controlled is for use in areas up to 50,000 cubic feet. This model uses a patented Metering Injector feed device, the same as employed in commercial installations, applied to locations having a year 'round circulating air system. These latter systems can handle areas up to 1 million cubic feet.

Made by: Iron City Chemical Co., Evans City, Pa.

Brundage series "X" blower Assemblies in range of Sizes

BRUNDAGE Series "X" blower assemblies incorporate a new blower wheel of increased efficiency and feature four-point suspension of the bearing bracket for any style of discharge.



Made in sizes 8" through 15" in a wide range of styles to meet any furnace blower requirement, the assemblies are equipped with self-aligning spherical bearings with increased oil reservoir. A one-piece, reinforced bridge-type motor mount is furnished for any style of discharge for motor location.

Made by: The Brundage Co., Kalamazoo, Mich.

How to use thumb Rules

(*Begins on page 54*)

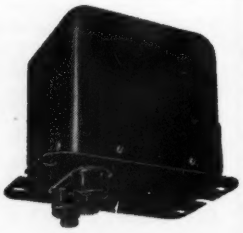
using other grade designations for the fueloils they sell. That's beside the point of this table, as we report here what some oil companies are doing, not what they should be doing with regard to observing the latest Commercial Standards. Don't take this as insulting to Commercial Standards. We are all for them!

Be careful to use properly the values in the "Useful Equivalents" table! As an example of misuse of such equivalents: One manufacturer's catalogue contains quite a spiel on how to use 746 wats as equivalent to one horsepower from an electric motor, winding up with how to figure the yearly cost of running an oilburner motor, but overlooks completely that such a motor is not 100% efficient. Some engineers

DONGAN TRANSFORMERS

How They Solve Ignition Problems

Especially designed to meet the varied needs of individual oil-burners, Dongan Transformers effectively solve the oil-burner ignition problem. Standard types with voltages from 5,000 to 20,000. Special types to meet specific requirements.



A variety of sizes and mountings. Send for catalog — or, if you have a special problem, write our Engineering Department.

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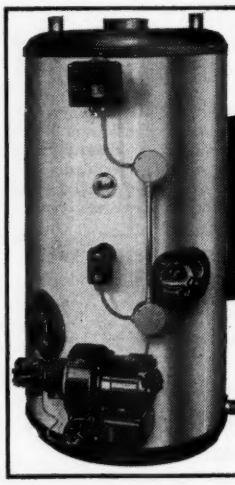

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OILHEATING BOOKS

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A collection of four articles, opening with a discussion of both types of vertical rotary oilburners, followed by three on wall flame rotaries. Written by a laboratory manager and field engineer of Fluid Heat, they cover the principles of operation, types of burners, installation methods and procedures, fire-testing the installed burner and common service problems. It's a book 8½ x 11 inches with 18 diagrams.

$1.

HEADING OFF TROUBLE IN DOMESTIC OILHEATING

This book contains articles about the most important precautions to take in installations and service and thereby cut down the number of service calls. The selection is about those things which give the greatest amount of future trouble for service men. A highly practical compilation of pieces from FUELOIL & OIL HEAT. It's a 64-page book 8½ by 11 inches.

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Only book other than manufacturers' manuals that gives a full picture of low pressure burner principles of operation and construction—Winkler, Oil-O-Matic, G. E., Hart, Hev-E-Oil. Skeletonized diagram of each make of burner makes them more understandable. The new booklet is 8½ by 11 inches, contains 20 pages.

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KENT Double Suction FURNACE CLEANERS

The KENT is geared for profits . . . engineered for performance . . . built to last! It separates into 2 parts for easy carrying.

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- No outside dustbag, no dust passes thru fans!
- Live outlet at switch for extension light!

Furnace cleaning jobs get you valuable leads on repairs and new installations!

Literature and full information available upon request.

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Economy
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This Complete Line of R & I Quality products for oil burner installations is available through jobbers everywhere

Service-Proved Products Make Combustion Chamber Installations Better and Easier

R & I Combustion Chamber—easy to assemble, precast, sectional, makes any shape fire box for gun-type burners in any type boiler or furnace. Saves time and money.

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regard small motors as 50% efficient in general. Obtain specific information on this, regarding any certain motor, from the manufacturer of the motor.

This entire article refers, of course, to thumb rules used properly in the ways indicated, not to thumb rules used slovenly in place of accurate computations. Use accurate computations whenever you can. If a thumb rule can be used to solve a problem which also can be calculated accurately, the worth of the thumb rule is proved by its producing an answer similar to that obtained by accurate computation. Some problems need a quick, thumb-rule answer to start out, and later need an exact answer obtained through careful calculation. Some problems can be solved only through the use of thumb rules. Because of that, and because thumb rules are great time savers, and sometimes are great face savers, you should know the ins and outs of a couple dozen thumb rules if you aim to shine as an oilheating expert.

❖

John H. Ballantine was elected chairman of the board and *Dante E. Broggi*, president of Neptune Meter Co., New York 20, N. Y., at the annual meeting of its board of directors. Mr. Ballantine retires from the presidency after serving in the post for 17 years. Mr. Broggi joined the company in 1920 and for the past 4 years has been vice-president and general manager.

Know your Costs

(*Begins on page 63*)

approximating a little more than 1/3¢ a gallon. Those companies who still carry on the so-called free service—because of bad competitive conditions, or through ignorance of sounder methods and better selling—are certain to be experiencing a cost ranging from not less than five to seven and one-half mills, or more.

Unfortunately for the industry, and for the public as well, some of the less scrupulous operators within the industry have unwittingly or otherwise made the question of free service a racket. The legitimate portion of the industry, which so overwhelmingly prevails, takes the position that such practices are shortsighted, devoid of principle, and those who practice them should either be reformed or purged from the industry.

Free burner service, even though carried on with scrupulous honesty, constitutes a serious menace against an equitable recovery of gross profit. In passing, there certainly will never be a better opportunity than now to abolish such excesses. To know the cost of burner service, and all that is implied in doing a good job, is to know that it cannot be done gratuitously.

Another article will deal with some further ideas of cost control through several additional angles, all under the theme "know your costs." Some surprises may await the patient reader.

Answers to Questions on P. 54

1. *Oil consumption will be 540 gallons for January, and 2,700 gallons for the year, on the bases outlined in the article.*
2. *On basis of 15 gallons per day per occupant, up to 9,600 gallons per day.*
3. *Fire 50 gph. See thumb rule #12.*
4. *Fire 4.5 gph. See thumb rule #9.*
5. *Figuring a minimum of 60 sq. in. of firebox floor per gph for a compact well-shaped flame in this range of size, fire 4.5 gph. Figure 80 to 100 sq. in. per gph for flames smaller or not well-shaped and compact.*

Develop Glass-fiber Tube and pipe Material

GLASWELD, glass-fiber tube and pipe material, has been developed as a replacement for steel and other critical war metals. It is described as possessing the strength of steel, is rust and corrosion-proof, and now is being offered as piping in the oil and chemical processing industry, and as tubing in the building, electrical and allied fields.

Glasweld is a laminated tubing in which glass fibers, in the form of cloth, mat or tape, are bonded with resins to develop a rugged tube. Because it is not affected by salt water or hydrogen sulfide, its use is indicated in oil line and well piping.

Made by: United States Plywood Corp., 55 West 44th St., New York 18, N. Y.

PREFERRED
DRAFT-A-JUSTORS

Cut Fuel Consumption by

10% TO 30%

The *Preferred* Draft-A-Justor is the original, patented Draft-A-Justor . . . improved to include the latest in engineering developments.

Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

WRITE FOR DESCRIPTIVE LITERATURE AND TRADE PRICES.

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Stove, domestic and commercial sizes from 4" to 24" in diameter.

Industrial sizes from 2' x 2' to 5' x 12'.

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CONVERTIBLE HEAT-PAK BOILER-BURNERS

Nine out of ten new homes heat with oil or gas. With Aldrich you sell both markets — plus the oil-gas industrial market.

Aldrich Boiler-Burners come in seven sizes — from 100,000 to 808,000 BTU/hr. All are interchangeable between oil and gas, though the 514,000 and 808,000 sizes must be originally gas fired to have interchangeable burners.

Available Gas-Fired

Meet more requirements with less inventory . . . Cash in on oil units now, cash in again with conversions when gas is available.

Aldrich Boiler-Burners are vertical-type, compact, efficient, beautifully finished; shipped fully assembled, ready to set in place and connect.

Profit with ALDRICH — Get Details Today. Write or wire for Heat-Pak facts, full specifications.

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ALDRICH HEAT-PAK PRODUCTS

A Subsidiary of Breeze Corporations, Inc.

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ANOTHER BREEZE MARK PRODUCT

E-Z MORE PROFIT PER *Service Call*

When the oil burner Servicemen answer a call it is easy many times to add furnace cleaning to the job. E-Z Fuel Oil Soot Destroyer (for fuel oil soot only) does a thorough, clean, safe job in just one application. Takes but a few minutes. Keep a 5 lb. Can on each service truck, always. Stock the 1 lb. Cans for sales to your customers. If your Distributor cannot supply you, order direct.

No. 1 Pkg. approx. 1 lb. . . . List $1.00 ea.
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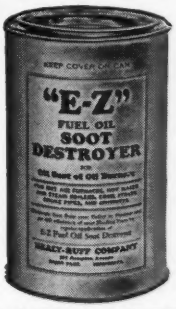
Liberal discount to bona fide Servicemen.

Special discount to Distributors on quantity purchases, allows for extending regular discount to Dealers and Servicemen.



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Oilheating Trends

(*Begins on page* 12)

Gulf, but the Midwest was up 66% over the previous year.

FUELOIL DRIVERS' COST: As a measurement of fueloil delivery efficiency a number of larger operators have been looking at their drivers wage cost expressed in a fraction of a cent per gallon delivered. A check was made this month among the regular reporting group of fueloil distributors to see how they stack up on this point.

Those reporting from New England find that their average wage cost is .39¢ per gallon delivered and the reporting companies had an average wage scale of $1.39 per hour. In the Mid-Atlantic states the average wage cost was .38¢ per gallon with an average wage rate of $1.65 per hour. The Midwest group averaged .53¢ per gallon delivered with an average wage rate of $1.28 per hour. The Midwest figure is not directly comparable to the Eastern regions because most of the returns from the Midwest were from smaller cities and towns and not enough from the big cities. The Pacific Northwest showed .48¢ per gallon delivered on an average wage rate of $1.67 per hour.

DEALER COMMENTS: Typical comments on questions of the month are these . . . "We are having trouble getting steel sheets and electric wiring equipment" . . . "Gas still growing strong, costs less to install; quite a lot of replacements from oil to gas in our market" . . . "Just back from two weeks reserve training at Navy Depot; reserve officers being quietly called

Less TARE — Longer WARE

Glider

FUELOIL ADDITIVE

WHAT IT DOES:

- Helps remove soot.
- Increases B.T.U.'s.
- Helps dissolve and remove gum deposits, sludge and water.
- Helps overcome oil odors.
- Retards rust and corrosion.

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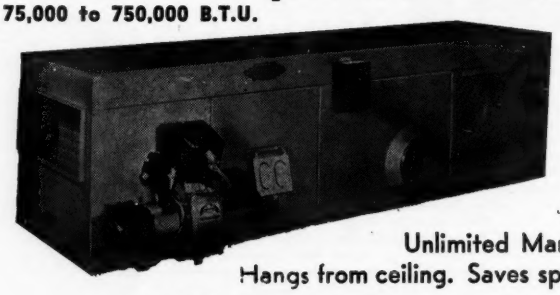
ARTCRAFT Suspended Furnace

75,000 to 750,000 B.T.U.



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$3 THIS SECOND EDITION contains ratings and major specifications of all types of domestic heating boilers, rated up to 2,000 sq. ft. of steam and equivalent hot water radiation. Includes new, old and obsolete models. Complete and comprehensive. More than 5,000 boiler trade names.

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STILL THE BEST for cleaning oil and gas-fired heating plants.

EFFICIENT AND ECONOMICAL TO USE

ALSO:

SLUDGE-GO for Cleaning Fuel Oil Tanks and Will Emulsify Water.

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Write for name of nearest jobber

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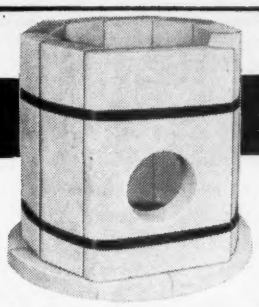

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Equipment manufacturers are invited to bring their special design problems to us.

HIGH QUALITY

American Chambers are made from the finest, high grade refractory materials combined with proper "Kiln-curing". They will withstand 2500 degree temperatures and will not crumble in water.

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Controlled manufacturing and careful design of American Chambers makes for fast and easy installation. The flexible pieces fit together with a minimum of effort.

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Because of the high quality of materials used in American Chambers they provide faster heat-ups, quieter burner operation and savings in fuel.

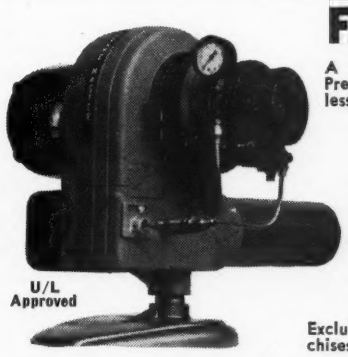
JOBBERS: Write today for price sheet.

AMERICAN CLAY FORMING CO.

TIFFIN, OHIO

back in increasing numbers; many of these men have had to dispose of their businesses" . . . "Warm air grilles and registers are slow being shipped" . . . "Shortage of galvanized sheets is keeping us from bidding on some new jobs" . . . "The Federal Reserve analyst at Chicago said we were lucky that our industry was holding up in sales. From what I hear (even competitors are telling the truth) oilburner business is down" . . . "Price control has thrown our summer fill-up inventory profits out the window; now we have to borrow money to fill up to protect our customers with no prospect of a profit" . . . "Limited number of gas jobs going in; what a beautiful selling job they are doing. Why couldn't we?" . . . "We have been using 1¼ inch galvanized pipe faster than we can get it" . . . "This is going to be a big heating year for those that get out and sell" . . . "The slowest delivery at present is on ¾ inch copper tubing" . . . "Our margin is being squeezed by a number of numerous small cost increases; driver wage rates went up April first 3¢ an hour; hauling rates up nine points; no relief in sight to recover such losses" . . . "We have not tried to push sales as yet because the oilburner men who have big stocks on hand have not changed their prices to allow for increases necessary to replenish stocks; we feel at a later date we will be able to get the right price for an installation" . . . "I am starting my 21st year, the same location with the same phone number and also I am starting my 17th year as a distributor for Century Engineering.

FLAME-MASTER



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Lifts fuel from buried tanks.
Complete atomization at low-pressures.
High CO_2 ratings.
Many other Patented features.
Simple service requirements.

Exclusive dealer and distributor franchises now available.

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Mfgrs. of High and Low Pressure Oil Burners

Instant Steam

FROM A SIZZLING HOT PAN...THE MOST EFFICIENT, MOST DEPENDABLE WAY TO PUT MOISTURE IN THE AIR

With the AUTOMATIC HUMIDIFIER water drips into pan only after pan is hot. Each drop sizzles into steam as it strikes heated pan surface. Puts the most moisture into air stream when it is MOST NEEDED.

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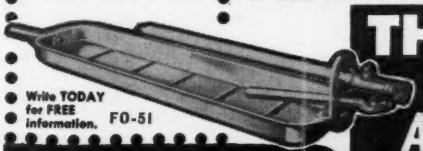
- SUPER-SENSITIVE THERMOSTAT
- OUTSIDE SCREW ADJUSTER
- EASY INSTALLATION
- ONE KIT TO PURCHASE



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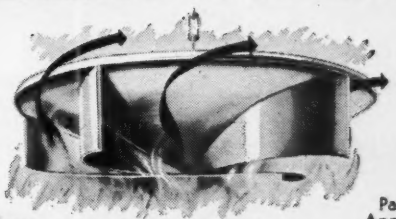

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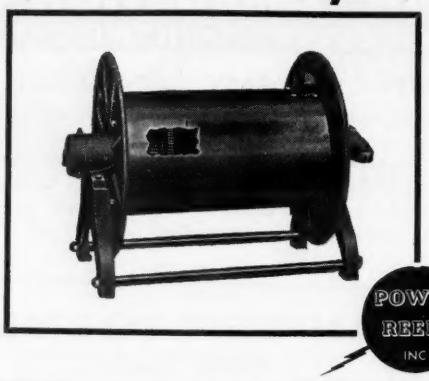

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DEGREE DAY TABLES

ONE MONTH ONLY — March Normal	March 1950	March 1951	Percent Change*		SEASON TO DATE (Sept. 1 to Mar. 31) Normal	1950	1951	Percent Change*
955	1166	916	— 4.1	Albany	5817	5782	5697	— 2.0
389	493	410	+ 5.4	Atlanta	2794	2282	2888	+ 3.3
650	735	611	— 6.0	Baltimore	4063	3430	3765	— 7.3
852	961	797	— 6.4	Boston	5067	4727	4437	— 12.4
1010	1133	917	— 9.2	Buffalo	5782	5449	5510	— 4.7
871	965	907	+ 4.1	Chicago	5410	5106	5451	+ 0.7
681	732	665	— 2.3	Cincinnati	4487	3660	4309	— 3.9
892	976	832	— 6.7	Cleveland	5281	4703	5094	— 3.5
284	320	260	— 8.4	Dallas	2269	1949	2178	— 4.0
792	787	876	+ 10.6	Denver	4990	4382	4570	— 8.4
849	1001	1122	+ 32.1	Des Moines	5742	5755	6456	+ 12.4
943	1070	878	— 6.9	Detroit	5681	5364	5521	— 2.8
962	1073	913	— 5.1	Grand Rapids	5817	5488	5607	— 3.6
871	998	801	— 8.0	Hartford	5296	5142	4882	— 7.8
982	1066	1356	+ 38.0	Helena	6548	7257	7204	+ 10.0
154	167	116	— 24.6	Houston	1283	848	1164	— 9.2
751	835	796	+ 6.0	Indianapolis	4890	4333	5003	+ 2.3
657	767	803	+ 22.2	Kansas City	4538	4262	4625	+ 1.9
209	198	168	— 19.6	Los Angeles	1100	1283	921	— 16.2
595	691	669	+ 12.4	Louisville	4027	3555	4185	+ 3.9
969	1100	1052	+ 8.5	Milwaukee	5994	5903	6447	+ 7.5
1082	1264	1353	+ 25.0	Minneapolis	7063	7227	7599	+ 7.5
130	180	130	..	New Orleans	1175	927	1177	+ 0.1
785	860	721	— 8.1	New York	4627	3945	4092	— 11.5
813	950	1055	+ 29.7	Omaha	5508	5727	5850	+ 6.2
685	788	667	— 2.6	Philadelphia	4227	3737	3953	— 6.5
767	872	713	— 7.0	Pittsburgh	4809	4196	4549	— 5.4
1003	1192	976	— 2.7	Portland, Me.	6085	6201	5833	— 4.1
530	576	669	+ 26.2	Portland, Ore.	3603	3868	3453	— 4.1
866	948	758	— 12.4	Providence	5158	4653	4356	— 15.5
573	687	599	+ 4.5	Roanoke, Va.	3738	3440	3944	+ 5.5
616	728	745	+ 20.9	St. Louis	4209	3794	4509	+ 7.1
709	711	814	+ 14.8	Salt Lake City	4885	4607	4439	— 9.1
314	361	331	+ 5.4	San Francisco	2048	2207	1839	— 10.2
1303	1427	1207	— 7.3	Sault Ste. Marie	7587	7622	7441	— 1.9
595	619	686	+ 15.3	Seattle	3816	4063	3597	— 5.7
889	1031	877	— 1.3	Toledo	5442	5245	5614	+ 3.1
637	717	598	— 6.1	Washington	4133	3353	3730	— 9.7

*Compared with normal. Note: Above figures secured from Monthly Meteorological Summaries published by U. S. Weather Bureau offices in individual cities.